



**Wilsonville City Hall
Development Review Board Panel A**

Monday, September 11, 2017 - 6:30 P.M.

I. **Call To Order:**

II. **Chairman's Remarks:**

III. **Roll Call:**

Fred Ruby Joann Linville
James Frinell Jennifer Willard
Ronald Heberlein

IV. **Citizen's Input:**

V. **Consent Agenda:**

A. Approval of minutes of the July 10, 2017 DRB Panel A meeting

Documents:

[July 10 2017 Minutes.pdf](#)

VI. **Public Hearing:**

A. Resolution No. 337

Villebois Regional Parks 7 & 8: Polygon Northwest - Applicant. The applicant is requesting approval of a Final Development Plan with Preliminary Development Plan Refinements and Type C Tree Plan for Regional Parks No. 7 and 8. The properties are located on the eastern edge of Villebois on Tax Lots 102, 192 and 200 of Section 15 and Tax Lots 13300, 13390, 13400, 15100, 29200 and 29290 of Section 15A, T3S, R1W, Clackamas County, Oregon. Staff: Daniel Pauly

Case File: DB17-0011 Final Development Plan and Preliminary
Development Plan Refinements
DB17-0020 Type C Tree Plan

This item was continued to this date and time certain at the July 10, 2017 DRB Panel A meeting

Documents:

[DB17-0011 et seq SR.Exhibit for 9.11.2017.pdf](#)

B. Resolution No. 342

Hilton Garden Inn: Dave Kimmel, Planning Design Group - Representative for RR Hotels Portland LLC - Applicant/Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Building Height and Minimum Lot Size Waivers, Site Design Review, Type C Tree Plan and Class 3 Sign Permit for construction of a new four-story, 118 room hotel with associated parking and landscaping improvements. The subject property is located on Tax Lot 10201 of Section 24CB, T3S, R1W, Clackamas County, Oregon. Staff: Jennifer Scola.

Case Files: DB17-0013 Stage II Final Plan Revision
DB17-0014 Waivers (2) – Building Height & Minimum Lot Size
DB17-0015 Site Design Review
DB17-0016 Type C Tree Plan
DB17-0017 Class III Sign Permit

Documents:

[Hilton Garden Inn Staff Report.Exhibits.pdf](#)
[Exhibit B2 - Applicants Findings and Submitted Reports.pdf](#)
[Exhibit B3 - Plan Set.pdf](#)

VII. Board Member Communications:

A. Results of the July 24, 2017 DRB Panel B meeting

Documents:

[DRB-B July 24 2017 Results.pdf](#)

B. Results of the August 28, 2017 DRB Panel B meeting

Documents:

[DRB-B Aug 28 2017 Results.pdf](#)

C. Recent City Council Action Minutes

Documents:

[Recent City Council Action Minutes.pdf](#)

VIII. Staff Communications

IX. Adjournment

Assistive Listening Devices (ALD) are available for persons with impaired hearing and can be scheduled for this meeting. The City will also endeavor to provide the following services, without cost, if requested at least 48 hours prior to the meeting.

- Qualified sign language interpreters for persons with speech or hearing impairments.
- Qualified bilingual interpreters.
- To obtain such services, please call the Planning Assistant at 503 682-4960

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 11, 2017

6:30 PM

- V. Consent Agenda:
 - A. Approval of minutes from July 10, 2017 DRB
Panel A meeting

**Wilsonville City Hall
29799 SW Town Center Loop East
Wilsonville, Oregon**

**Development Review Board – Panel A
Minutes–July 10, 2017 6:30 PM**

I. Call to Order

Chair Heberlein called the meeting to order at 6:30 p.m.

II. Chairman’s Remarks

The Conduct of Hearing and Statement of Public Notice were read into the record.

III. Roll Call

Present for roll call were: Ronald Heberlein, James Frinell, Fred Ruby, Joann Linville and Jennifer Willard.

Staff present: Daniel Pauly, Barbara Jacobson, Mike Ward, Kerry Rappold and Brian Stevenson

IV. Citizens’ Input

This is an opportunity for visitors to address the Development Review Board (DRB) on items not on the agenda. There were no comments.

V. Consent Agenda:

A. Approval of minutes of the November 14, 2016 meeting

James Frinell moved to approve the November 14, 2016 meeting minutes as presented. Fred Ruby seconded the motion, which passed 3 to 0 to 2 with Joann Linville and Jennifer Willard abstaining.

B. Approval of minutes of the March 13, 2017 meeting

Fred Ruby moved to approve the March 13, 2017 meeting minutes as presented. Joann Linville seconded the motion, which passed 4 to 0 to 1 with James Frinell abstaining.

VI. Public Hearing:

A. **Resolution No. 337. Villebois Regional Parks 7 & 8: Polygon Northwest – Applicant.** The applicant is requesting approval of a Final Development Plan with Preliminary Development Plan Refinements and Type C Tree Plan for Regional Parks No. 7 and 8. The properties are located on the eastern edge of Villebois on Tax Lots 102, 192 and 200 of Section 15 and Tax Lots 13300, 13390, 13400, 15100, 29200 and 29290 of Section 15A, T3S, R1W, Clackamas County, Oregon. Staff: Daniel Pauly

Case File: DB17-0011 Final Development Plan and Preliminary

Chair Heberlein called the public hearing to order at 6:35 pm and read the conduct of hearing format into the record. All Board members declared for the record that they had visited the site. No board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Daniel Pauly, Senior Planner, announced that the criteria applicable to the application were stated on page 2 of the Staff report, which was entered into the record. Copies of the report were made available to the side of the room.

Mr. Pauly presented the Staff report via PowerPoint, noting the project's location and surrounding features, and reviewing the requested applications with these key comments:

- The only part of the property owned by Metro involved in the application was in the very southwest corner. (Slide 2) The remainder of the development was on land owned either by Polygon, the City, or the City's Urban Renewal agency. Metro had worked closely with Staff on the component that was on their property and was in support of the application. Everywhere from the proposed park over to the new Kinsman Rd was wetland that was either owned or was in the process of being purchased for preservation.
- He described the stages of review in the Villebois planning process, noting the provision for allowing refinements and the background leading to the subject Final Development Plan (FDP). He also described the hierarchy of park types in the Villebois Master Plan, noting the area's pocket parks, linear greens, neighborhood park, and the proposed regional park. (Slide 5)
- Villebois' regional park was comprised of eight separate components. He briefly described the features of Regional Parks 1 through 4, which had been fully built and were already being used. Regional Park 5 included the skate park and restrooms and was currently under construction. The land for Regional Park 6 had not yet become available for development due to ownership issues, so Regional Parks 7 and 8 would be built first.
- Displaying Master Plan Figures 5A and 5B (Slides 5 and 6), as well as the Park Programming Matrix (Slide 7), which showed the amenities approved in the original Master Plan, he noted the amenities proposed for Regional Parks 7 and 8, which were highlighted in the matrix.
 - He explained why the Master Plan's approval dates differed, noting the 2013 revisions occurred when Grande Point at Villebois was approved. He confirmed Regional Parks 7 and 8 were in the original 2003 Master Plan.
 - He noted the Master Plan language describing each park component, noting the Master Plan's goal of providing a lot of activities for a variety of age groups, as well as adequate areas for calm.
- The subdivisions involved in setting aside land specifically for the proposed park were Rutherford Meadows by Lennar Homes, as well as Tonquin Meadows by Polygon. Tonquin Meadows included about 500 homes and was located on the eastern side north of the school. The location and use of the land for the proposed park was approved concurrently with

approval of the subdivision and now everything from the Master Plan was being carried forward and refined a bit for final approval of the design and function of the park.

- Development agreements regarding the park were already in place between the City and developer. As a major, future city park Regional Parks 7 and 8 were very important project to the City and had been thoroughly reviewed by a multi-disciplinary City Staff team, who also worked closely with the design team to provide feedback to ensure the best park possible.
- The Parks and Recreation Advisory Board unanimously approved forwarding a recommendation to the DRB to approve the park with some specific recommendations regarding the design, which included landscaping the soccer field to stop balls from going into the wetland, featuring the appropriate species of birds, adding safety guidelines signs, ensuring tree plantings would not shade the sundial, consider adding vehicle charging stations in the parking area, and taking measures to ensure the sports field would not generate too much traffic and parking.
- He described the changes proposed from the Master Plan, which included changes from the Specific Area Plan (SAP) and Preliminary Development Plan (PDP), with the following key comments:
- Overall, the proposed changes in the design met the refinement test and could be approvable as not being significant. One key item in terms of the parks and whether or not a change was significant was determining if a feature in question of being removed was otherwise available in the surrounding neighborhood.
- The refinements for Regional Park 7 involved additional amenities that would allow for more function while retaining the areas of calm. The general lawn play area was larger than called for in the Master Plan, and the bird-themed creative play feature, entry plaza, and a number of habitat amenities for birds and bats were added.
- In Regional Park 8, the number of drinking fountains was reduced from three to two. Per the Master Plan, the drinking fountains were next to the basketball court, sports field, and the main shelter and restrooms. In the final design, the basketball court and the sports field ended up being right next to each other, so a single drinking fountain could serve both of those. Also, the drinking fountains were evenly spaced at about a quarter mile apart. The drinking fountains' functionality had been increased as they would also include a bottle fill station.
- The general lawn play in Regional Park 8 had been significantly reduced because an ample amount of lawn play was available at Lowrie Primary School. Lowrie was originally planned to be located in another part of Villebois, but it was now only a block away the park and contained a large lawn play area, providing the amount envisioned for the Master Plan in this neighborhood.
- The removal of a community meeting room was not significant because again, the school was only a couple of blocks away with meeting space. Additionally, the community center and swim center building on Villebois Drive was not a part of the original Master Plan, but added only a couple of years ago after the PDP. The center included indoor space for the homeowners association (HOA) as well as meeting space, so it filled that same function within the neighborhood.

- A maintenance building with a single-stall restroom was added to replace the port-o-potties as it made sense to have a year-round restroom available.
- While steps were being taken to reduce the traffic generated by the sports fields and amenities on the northern edge of the park, no on-street parking existed on that part of Villebois Dr, so 14 off-street parking spaces were being added and incorporated into the design of the park.
- Traffic and Parking. All of the traffic modeling from the original Master Plan through the SAP and PDP levels was reviewed, including the parks and their different features. Traffic generation was approved at the PDP level, similar to the Stage 2 level with other applications the DRB reviewed, so it was not part of the scope of the subject review.
 - The Code did not require any parking in the parks. The general model throughout Villebois and reflected in the Master Plan was to not have parking on the park side of the streets to ensure vehicles did not block the view into the park.
 - Parking was generally provided on-street across the street from the park. In this case, parking was envisioned all along Coffee Lake Dr, shared with adjacent homes. There would also be the proposed 14 off-street parking spaces.
 - After discussions about how to minimize traffic, a condition of approval was added that neither the City nor HOA, which would manage the park for five years before turning it over to the City, would allow the sports field to be marketed, rented, or otherwise scheduled for games, practices, or tournaments. Use would be limited to first come, first served, as that was what the capacity was designed for. The field would not be where regular league sports games were scheduled every weekend, but, rather, a place where residents could play informally on a level, well-drained surface.
 - He confirmed the condition would continue once the City took over the park and as such, any modification would require a return to the DRB for any changes.
 - The proposal did not address on street parking because all of the adjacent streets were previously approved with the subdivision approval, which included the park. The proposed parking would be located just south of the roundabout along Villebois Dr North (Slide 14). The neighboring homes and park were approved together with the subdivision approval with the idea that they would share parking.
- Tree removal would be fairly limited. The trees being removed were primarily due to the health and condition of the individual tree. The proposal met the guidelines for tree removal in the Code.
- He reviewed some of the concerns raised in public comments and the City's responses that were addressed in the Staff report, noting parking had already been discussed.
 - Wildlife. The City highly valued wildlife as reflected in a lot of policy discussion over the years. The Significant Resource Overlay Zone (SROZ), which was mapped throughout the city, was in place to ensure the preservation of wildlife and habitat areas, including riparian areas, wetlands, and the buffer areas around them, as well as upland forest habitat. In this application, the SROZ was applied all across the Coffee Lake Wetlands, and all the proposed development would be in the more upland areas outside of the SROZ.

- The Master Plan defined the park area as a transition area. A lot of invasive species which would be removed and replanted with native trees and shrubs, which would increase the habitat in a lot of areas.
- There was always a balance to be struck between wildlife habitat and development. Staff found the proposal met both the SROZ regulations and what had been envisioned in the Master Plan to balance development and the preservation of wildlife. Sustainability was a big design component of Villebois, and the preservation of wildlife areas, forest habitat, and wetland areas was included in the Villebois Master Plan.

Jennifer Willard asked when the SROZ was defined.

Kerry Rappold, Natural Resources Manager, replied the original SROZ designation dated back to 2001 when the program was adopted. The areas were mapped and a program developed to protect them. The SROZ program was put in place about the same time or shortly before the original concept plan for Villebois.

- He confirmed the 25-ft setback to the overlay zone was defined at the same time. The SROZ protected significant wetlands, riparian areas, and upland wildlife habitat. The SROZ boundary was actually a 50-ft buffer outside any significant wetland. Another area, called the Impact Area, extended 25 ft beyond that SROZ boundary. Everything proposed within the development as part of the regional park was entirely outside the impact area, although there might be some slight impacts to that area. The proposed design was 75-ft from the edge of the wetland itself.

Ms. Willard asked if any other biologists had been consulted during the development of the SROZ in 2001.

Mr. Rappold responded Staff had worked with a consultant that had a team of wetland scientists and a biologist who helped Staff do the initial mapping inventory and develop the program that went with it. The SROZ program was based on the information that was compiled, assessed, and determined to be the best information possible from those professionals.

Mr. Pauly continued his Staff report presentation, addressing certain concerns and design features, with the following key comments:

- There was concern about having too many active areas in a natural area, and explained the proposed amenities reflected the balance between active and passive as originally proposed in the Villebois Master Plan. While the over-development of parks was also an understandable concern, in terms of the adopted policies and the Master Plan, the proposal was consistent with what had been envisioned for a long time for this development.
- Public concerns about the interruption of views, a common concern with additional development, was also understandable; however, nothing had been identified or any specific view corridors of significance that design alternatives would benefit. With the

increased native vegetation in the area, he believed many views would actually be improved.

- Noise from park use would occur, but nothing that would violate the City's noise ordinance or be abnormal from a typical park use.
- Trashcans would be located throughout the park. He was not aware of any complaints over the years of a significant amount of litter accumulating in any of the existing components of the regional park system in Villebois.
- Lighting would be all Dark Sky friendly and similar to the streetlamps in the newer parts of Villebois that were all down-lit with the light focused on where it was needed with no glare.
- The interactive stream feature proposed by the design team had been reviewed by Staff and the Parks Board and there were no concerns. Obviously, there would always be components not everyone would love, but hopefully, there would be something for everybody, and he expected some would love the stream component.
- He entered the following exhibits into the record:
 - Exhibit D4: An additional email received after the cut-off for publication in the Staff report.
 - Exhibit D5: The letter of support from Metro.

Chair Heberlein asked about the thought process behind replacing multiple port-o-potties with a single-stall restroom in the maintenance building of Regional Park 8.

Mr. Pauly replied the area would generate little use, especially with the limitation on having large organized games and events, so a single stall should be sufficient. The restroom would also be available year-round and co-locating the bathroom with the maintenance building was a benefit because restrooms were expensive to build. From a design and function standpoint, having a permanent restroom was preferable, and since the opportunity was there, the City encouraged it.

Ms. Linville noted an email discussing fencing and asked about permanent versus temporary fencing and asked what fencing currently existed and whether any fencing would remain.

Mr. Pauly explained there might be some older fencing from past agricultural uses. The 6-ft, chain-link protective fencing was recently put up around the trees during the subdivision development. There was also some black-coated chain link fencing farther up Coffee Lake Dr in the Lennar development to protect a preserved wetland, which was a treatment used in other SROZ areas and throughout the city. If the area east of Coffee Lake Dr was all wetland, that might be an appropriate treatment; however, it was tough to visualize without an aerial, how much non-wetland land there was east of Coffee Lake Dr.

Ms. Willard noted the Final Development Plan (FDP) had been updated from the PDP in several areas due to the presence of the elementary school, such as not needing a community room or as many bathrooms. She asked whether the reducing the amount of lawn area had also been addressed due to the close proximity of the school.

Mr. Pauly replied the lawn area was the amount the school desired, which was far above and beyond what was ever envisioned in that portion of Villebois.

Ms. Willard asked if any consideration had been given to reducing the lawn areas further in Regional Parks 7 and 8.

Mr. Pauly answered the lawn area in Regional Park 8 was already substantially small; ~~reduced~~. it was not a big, expansive area. Regional Park 7 was far enough removed from the school that it was appropriate to still have some lawn play area.

Chair Heberlein noted the recreation building had been identified as a justification for not having a meeting area in the regional park. He asked access and ownership perspective if that facility would have the same public access as there would have been to a meeting area in one of the regional parks.

Mr. Pauly replied there were two areas to consider. First, under its regulations the school was equally accessible to the public for a reservable meeting space. Second, the recreation center building would have meeting space available for the neighborhood, such as for a small HOA meeting.

Chair Heberlein asked if the City had ensured from a design and budget standpoint that the features of the two proposed parks would not cause a significant increase in the overall parks budget required for maintenance.

Mr. Pauly answered Park Supervisor Tod Blankenship and Parks and Recreation Director Mike McCarty were heavily involved in the process and maintenance was certainly a key consideration. The play equipment and different creative play features were evaluated for any potential issues. For the landscaping, mowing patterns were considered because a patch of grass that was hard to mow caused significant issues with increased costs due to the extra time required to mow it. For the sports field, Parks Staff met with suppliers and the design team to consider different engineered soil options to ensure they would function and be maintainable. The maintenance and restroom building was similar in design, in terms of structure and ease of maintenance, which has been an issue in other HOA parks. The restroom manufacturer was the as the restroom at Graham Oaks. All of the fixtures were a public use grade, using coatings and stainless metal that were graffiti-resistant, so the restroom would be easy to maintain.

- Because this was the FDP, the construction drawings were only at 30 percent so many more details were expected during the different processes for final construction. At the end of the five-year time period, an inspection would be done to ensure everything functioned properly and worked for maintenance. At that point, anything that did not function properly would have to be corrected before being turned over to the City for long-term maintenance. Many steps were involved both in the design and with inspections after the parks were built to ensure those costs were minimized long-term.

Chair Heberlein called for the Applicant's presentation.

Stacy Connery, Pacific Community Design, thanked Staff for their hard work on this project and the Staff report. She stated the Applicant accepted the conditions of approval as presented and the design team was present this evening to answer any questions after Ms. Lankford finished her presentation.

Kerry Lankford, Landscape Architect, Pacific Community Design, presented the Applicant's proposal via PowerPoint, highlighting the locations and surrounding features of Regional Parks 7 and 8 with the following key comments:

- Regional Park 8 had been broken up into three significant areas with a sports-centered themed area, an overlook with some really great vistas that would showcase the willows in the spring, and the creative play, nature play, and main play features. Starting at the entry plaza, she described the features park visitors would see/experience as they moved along the path through the park with these comments:
 - The first thing park visitors would encounter after the entry plaza would be an interpretive sign about finding 13 birds. Plaques along the path would have a bird's name on it so people could identify the different birds in the area. She had worked with Steve Benson of the Audubon Society who served on the Parks and Rec Board, to ensure all of the birds on the plaques were present and available for people to view.
 - The path also went around the open lawn play area, which had a small table and picnic area. The path also connected to an outer loop, which was where they were trying to develop the bird habitat. The park was right against the wetlands edge and a lot of reed canary grass and invasives would be removed and replaced with native plant material that would be great for the birds.
 - Down woody debris and snag poles would be introduced, as well as a nesting pole for a potential raptor and birdhouses to attract the swifts, tree swallows, and song birds. This part of the park was about birds and the habitat the Applicant could bring in. There would be plenty of water resources and different things that would increase the bird activity that already existed.
 - Crossing SW Villebois Dr North lead into the sports area. From the entry plaza a path would lead to an overlook for the field and then down to the basketball court. A walking trail would also loop all the way around with another overlook featuring benches so people could watch activities on the sports field.
 - The restroom would be centrally located and be close to the gazebo and picnic tables, providing an area for team parties.
 - Continuing on the path, she noted some storm water features would be covered by the boardwalk to prevent damage to them. All of these features would be in view of the willows, open fields, and etc. that were already there.
- Continuing on the path to Regional Park 7, she noted the central outlook would have an interpretive sign explaining how the property was being mitigated and vegetated. The Applicant ensured that the planting design would maintain the views, vistas, and corridors so no views would be blocked as the trees grew in the future.

- Further down the path and through the tree grove would be the large sundial. People would be able to tell the time by standing in the sundial. The sundial would change periodically due to added design elements, such different colors and indicating the solstice, so the sundial would be both educational and fun.
- Another plaza would overlook the wetland and wetland areas.
- The path would then lead to the main play area, which included a full restroom with a maintenance closet in the back and a large shelter with picnic tables.
- Farther down, the path would be the interactive play stream. The idea was to have the stream move from one wetland to the other wetland as well as under the educational deck and stage, which had an amphitheater feel. In this area, school kids could conduct a class, play, or stage an event. There would also be an area where they could look at how and why the water moved, and how it impacted the wetland.
- Next would be some open lawn play and the main play equipment for children aged 2 to 12., and then another gazebo that would help with nature play.
- The nature play area would have dinosaurs, big rocks, and attempt to pull off the Missoula Floods as a nod to the past, all of which would be explained with an interpretive sign. There would be places for kids to climb on large boulders, step on wood steppers, a tunnel room to crawl through, a log jam; essentially, as many interactive, fun, natural play areas they could get.
- Farther down the path would be another storm water facility, and then the end of the park.
- She concluded her presentation with a visual-only video with no audio.
- She clarified the interpretive play stream was meant for children to play in, but it would only have a small amount water. After the storm water was treated, it would go into the stream. She confirmed the play stream would be dry during the summer.

James Frinell noted the Parks and Recreation Board’s recommendation that the trees be removed around the sundial, but the drawing presented still showed the trees.

Ms. Connery clarified the plans would be updated in the construction documents when submitted for review through the Building Department. She confirmed the Applicant would follow through with the recommendation.

Chair Heberlein asked about the elevation change from the overlook view adjacent to the sports field.

Ms. Connery answered it was about 10 feet.

Chair Heberlein confirmed there was no further questions and called for public testimony in favor of, opposed, and neutral to the application.

Nik Stice, 28461 SW Coffee Lake Dr, stated his home would be adjacent to the overlook that would look over the field. He appreciated the spirit of what the project was trying to

accomplish as far as creating connectivity in the community, all of the work that had gone into it, and he understood a lot of time had been spent on the process. He understood this because he was a graduate of the University of Oregon with a degree in Planning Public Policy and Management and part of his degree was to build out a 39-acre parcel in the heart of Eugene for a private corporation that included 14 acres of wetlands. Part of that process was a series of focus groups that included all of the key stakeholders, such as business owners and residents that surrounded the property. He asked if there had been any public input during the design process of the proposed planned park.

Mr. Pauly answered yes, during the Master Plan process.

Mr. Stice asked if it would be appropriate to include the opinion of surrounding property owners that had not been there during the Master Plan phase. He clarified he meant outside the public hearing, such as in a focus group

Mr. Pauly responded any comments would certainly be considered and noted the entire subdivision, including the parks, went through a public hearing in 2012. It was unique that the design of this park was approved concurrently with the subdivision.

Mr. Stice responded when he purchased his home, Polygon provided him a residential layout that contained the proposed lots and wetlands area, but the sales materials did not include any future proposed park. He realized that was a Polygon issue, but felt it was important that the residents, who were unaware that the parks would be proposed, be included in the design element process. He believed the residents sitting behind him might have some very charged emotions about this and asked that the Board consider greatly the feedback that would come from this meeting and realize that was probably why there were more people than normal sitting in the room this evening.

Chair Heberlein suggested Mr. Stice's diagram be added to the record.

Mr. Pauly agreed and made a copy of Polygon's proposed lot layout, which was later entered into the record as Exhibit D6.

Zach Weigel, 10318 SW Lisbon Street, declared that while he worked for the City of Wilsonville in the Engineering Department, he was testifying as a resident of Villebois. He stated his family had been patiently waiting for this park to be built near his house since moving to Villebois five years ago and they were very excited to see the park finally start to get built. He noted that although Lowrie had a basketball court, it was built on a hillside that resulted in it being 8 ft on one side of the hoop and 12 ft on the other, so it was uneven and difficult to play on. Therefore, another basketball court was needed in this area.

Ms. Willard asked if Mr. Weigel was aware the park would be built when he purchased the home or because of his position with the City.

Mr. Weigel responded he had purchased his home prior to being employed by the City. However, he had done a lot of his own research studying the master plans before purchasing his home, and one main reason for his choice was the proximity to this future planned park.

Adam Reiner, 28441 SW Coffee Lake Dr., said he lived right on Villebois Dr. North and Coffee Lake Dr. He was very concerned about parking and knew it had been reviewed before. He had contacted Mr. Pauly originally when he had purchased his home and was notified that there was a park, but that was only out of concern that there was pavement going down there. But he did not receive any specifics of the park or any detailed plans. He had done a lot of research but could not find any information when he was looking a year ago. Tonight was the first time he had seen any details of a soccer field or basketball court. He had big concerns that these features would detract from the area in which he lived.

- He had specifically chosen his home because of the wetland area in front of it and paid extra because of it. He understood a lot of work had been done on the park and he appreciated some of the southwest side activities; however, the sports field would really detract and having a bathroom, having physical stuff there, would only encourage additional people to go there.
- If active areas were needed, he would rather see something besides a sports field, such as a dirt track, exercise fixtures, rock climbing, to minimize the number of people going there. He was concerned that a soccer field would attract a very large crowd. Typically, a soccer game would bring in 25 people or so who would need parking spaces. He understood parking was not being considered tonight, but he wanted to note that issue.
- He was also concerned about flood risk. He knew a lot of research had been done around that, but he grew up in Beaverton where a lot of work had been as well and many of the fields still flooded. And while many of the fields might not actually flood, they got very muddy, were not used in the winter, and turned into a giant mess and a very large expense. He did not want to see that happen.
- During his research, he had found the following statement in the Wilsonville Planning and Land Development Section 4.125 Village Zone, Section J, "Sustain the comfort, health, tranquility, and containment of residents and attract new residents." He stated if the park went in, he would move.
- He also noted if a wooden boardwalk were built, it would get slick in the winter. If there were non-slick conditions that did not grow mold, it would be a much better sidewalk.

Jamie Campbell, 28441 SW Coffee Lake Dr, stated her house would be directly in front of the soccer field, basketball court, entry plaza, and restroom. She had lived up the street from where Villebois was located her entire life and frankly, felt it was an eyesore. She only purchased her home for the property value of being located in front of a wetland area. It was beautiful. There were tons of birds, including a local pheasant that would crow at people. There was tons of wildlife right in the area in which they wanted to put the soccer field. Once the soccer field went in that would all disappear. It would devalue their homes, be noisy, and there was not enough parking. She saw no benefit when the Lowrie Primary School was right up the street. She did not want to pay extra HOA fees or extra taxes. Any tax money used should be on the roads. Furthermore, there should not be a roundabout going in because it was

destroying all the other roads in Wilsonville which had giant potholes, were difficult to drive on, and created traffic congestion. The wetlands should be left as a nature area; however if it had to be developed, there should be dog-friendly nature trails since the nature park on the other side did not have many dog-friendly trails.

Chair Heberlein stated Corbin Bowen had submitted a testimony card noting his was in opposition and confirmed he did not wish to testify.

Lisa Chang, 10971 SW Verdun Lp, stated that she lived pretty close to proposed Regional Park 8, the bird area. Her main issue was that some time ago, the area had been kind of paved for weed control, and a lot of the wildlife did not come back. A blue heron was there when she first moved in and she had not seen him for a year. She did not believe the bird area would accomplish the goal to bring in animals and increase the habitat and wildlife. There were also a lot of ducks in the area, as well as quail, and if the park was built, she did not believe she would see any quail.

- She had also been promised by Polygon that the area would not be developed at all; it was protected wildlife. She would not have bought her house if she knew all this would be developed.
- The notice she received in the mail stated residents could not say they did not like it just because they did not like it, but must have a specific reason. She was frustrated that the 2003 Master Plan kept residents from saying anything. She believed that those who purchased their homes recently should have a say in what was built since it was so close to their homes. A new master plan should be made with the residents that lived there now because the homes were brand new, some were still being built, and she felt a lot of people would not have bought their homes if they knew the proposed facilities were going to be built. It was a huge over-build in Villebois. The nature area should be kept as it is. If something had to be built, she also liked the idea of a dog-friendly trail, but all of this, especially the parking lot, was ridiculous, completely unnecessary, and a waste of the City's money.
- She noted Mr. Pauly had said the proposed open area for learning was small and commented that if it was going to be that small, there was no need to develop it. Let nature be as it is, and let the birds live in their natural habitats. If there was worry about invasive species, the City could take out the blackberries, etc., but it did not need to be developed to stop invasive species from coming in.

Adam Hill stated his address was on the testimony card as submitted. He explained his house was located between proposed Regional Park 7 and 8, right on the corner. The side of his house would overlook the bird exhibit, but he did not believe there would be any birds left once the lawn was installed. His front yard would overlook the parking lot and a grass desert. He reiterated that the area was incredibly unique. Villebois was placed between two amazing, very rare places in the region. The area had an amazing opportunity for tourism, as he knew the City was trying to bring in more. Eventually, this would connect to a trail that went 23 to 26 miles or so, as well as a whole other bird sanctuary in Sherwood. They get thousands of people daily that buy coffee in their neighborhoods and stop at the local stores. He knew a

future downtown, a village, was being created. The wetlands were a great addition to the area, a jewel in this region.

- He did not think this was mentioned, but the area where proposed Regional Park 7 would go flooded every year, of which he had photos. It overflowed onto the street and down into the drainage along the side. About ten months out of the year that area of the park would be an unwalkable, muddy mess. He believed it only recently dried out due to the hot weather. The blue heron referenced earlier, which his family had called Harry the Heron, used to come around. He noted if people would sit and wait for a while, they would see some really amazing things. Now that the road was closed, he suggested the Board members go out and have a look as it was really, really special.
- His mother always said, "If you're going to do something, do it right." He believed the developers were trying to put too much into an area that could not handle it, a soccer field into an area that was not designed for a soccer field. It was a 100-year flood plain and the area did get marshy.
- Canary grass was an invasive species, but instead of soccer field, butterfly and bird sanctuaries should be built, or an area where people were surrounded by butterflies when walking down a path, instead of hearing the sounds of kids playing soccer, mid-mows mowing, landscapers blowing, and scaring wildlife looking for a place to be, but cannot be there because there was a mower or blower, or a soccer ball flying passed them.
- He implored the Board to not decimate the area because it was really, really special.

Meike Bradley, 10421 SW Lisbon St, stated she had only intended to observe the hearing, but the testimony was very one-sided and she wanted to give her input. She worked in real estate and being in Portland or all over town every day, she specifically chose to live in Villebois and in close proximity to the proposed park. Like Mr. Weigel, she was very excited for the park. When she purchased her home, she was aware of the plans for the future park. She had printed out the plans and always showed them to visitors due to her excitement. While she had heard all of the complaints, and could not speak for Polygon, she felt that the park was public knowledge and had been for a while. She trusted in Wilsonville. Of all the neighborhoods of Portland, and suburbs, she believed Wilsonville put a lot of thought into creating, building, and maintaining the city.

Chair Heberlein called for the Applicant's rebuttal.

Pam Verdadero, Polygon Homes, thanked everyone for their honest opinions and for taking time to express their feelings about the proposed park. This was a joint effort with the City of Wilsonville. She had been a salesperson with Polygon for a very long time, and one of the most proud things one could say was that "There will be no development across the street from you," meaning it would be as is, or left as a park, wetland, or nature area; so, she could understand if residents did not feel they were given the full picture, or more than a one line sentence, about an area being left natural. She was unsure how the City felt about taking more time to look at the plan, but she believed Polygon was open to that.

- She also appreciated those who came out to express their interest in living across the street from the proposed park. She believed most people would think a park would not be a bad

thing to live across the street from, but whether people had lived across the street from the wetlands for a long time or short time, they had been able to observe and appreciate what it was all about.

- She reiterated that Polygon was open to further discussions and possible focus groups to talk about this area in more detail. Not to undo the work that had been done, as this had been in the Plan for several years. Polygon had not been one of the first developers in the neighborhood, but took on development later on. This was not Polygon's concept to begin with, but it was certainly a part of what they were about to finish in the neighborhood.

Ms. Connery offered some historical perspective on the project. She had been a part of the parks master planning process to define the components that would be a part of the parks system throughout Villebois. It was a very extensive process that happened from 2003 to 2006 that involved basically every Board that the City had, as well as all of the developers involved in the project at the time and their consultants. They went through a very extensive process of trying to identify what 2,500 future residents of Villebois might need to fully enjoy the community and all of the natural resources that existed within and around it.

- One of the stellar components to the project was the greenway system, which connected the trails from Graham Oaks Natural Area all the way around the project and would ultimately connect to the north through the Tonquin Trail. The idea was to have different sorts of activities that people could participate in along that trail system, features that could entertain a wide variety of different age groups; some being more passive and some more active.
- The subject area was actually pretty large. While narrow and thin along the roadway, the upland area between the development and the resource was envisioned to be a long trail system with little activity nodes that people could participate in. That followed in line with the vision that was established when the whole project was started. She noted the project engineer could speak to some of the comments regarding flooding and drainage concerns.

Patrick Espinosa, Project Manager, Pacific Community Design, responded to concerns about flooding in the bird park of proposed Regional Park 7. When the Villebois Drive road extension was originally built, first with the City project that created the Boeckman Rd roundabout, and then later with the development, the Regional Park 7 area was unintentionally detached from the rest of the flood plain that extended east out into the wetland. As part of the proposed project, the Applicant would be reconnecting those two flood plains and providing drainage under the road to drain that area of the park, which would allow for some areas to be relatively more wet to provide more bird habitat, but also to drain the areas where lawn play was anticipated.

Ms. Linville asked if the sports field and the soccer field in particular, was a concept in the initial Master Plan that had been brought forward or was it just part of the design feature.

Ms. Connery answered that a sports field, which was envisioned as a soccer field, was originally part of the Master Plan concept. In stepping through the design process, it had become more of a neighborhood type of sports field. It would not be programmed through any

organization, but would be available for the neighborhood children to use. It was not intended to draw people to it. It was intended to be a part of the neighborhood.

Fred Ruby asked if the soccer field would be specifically excluded from organized sports programs, how important was the sports field and, maybe even the basketball court component, to the vitality of the park. It seemed from the testimony heard today that a nature corridor concept could not only complement the very large area of the Coffee Creek Wetlands Area that would remain, but it could enhance it similar to how that the trails in the Graham Oaks Nature Park enhanced the access. Based on tonight's testimony, the sports field/sports activity component of this proposed park seemed out of character with the effort to blend in and complement the vast natural area. Since the field would not be used for organized play, and the big, green field was now available at Lowrie Primary School, he questioned how much the proposed sports field would really be needed. Changing the sports field to a more complementary nature trail type concept might help the neighbors' concerns in terms of the changing character of usage of that area.

Ms. Connery responded that was an interesting point because it was a part of the Master Plan when the Parks Master Plan was originally adopted, and at that time the elementary school was not on the east side. It was in SAP North, so that change could influence this proposal.

Ms. Verdadero agreed that some dialogue could occur based on that alone.

Mr. Ruby asked if there would be other uses for the large sports field area that would be more complementary to the natural features of the Coffee Creek Wetlands Area; perhaps there could be a viewing area or a raised boardwalk. Was there a way the land committed to the sports field could be used differently that would enhance more of a nature trail or nature facility type of development?

Ms. Connery responded she was sure the Applicant could explore alternatives, though it would take a bit of design effort to work through some of that. She asked Mr. Pauly what parameters they would have to work within at this point.

Mr. Pauly stated that from all the discussion, no one had contemplated not having the sports field. Throughout the design of Villebois, getting a large, grassy, level open area in Villebois had been a challenge. Besides Lowrie Primary, the only other really flat area that could be used in a similar fashion was in Palermo Park, which was the recessed area that did get really wet because it was designed as storm water detention. The sports field would be a fairly unique feature in Villebois in that it would be a well-drained, flat, play area that could be used for a variety of activities, especially during the school day or when the school fields were otherwise unavailable.

Chair Heberlein asked if it was going to be a full-sized soccer field.

Ms. Lankford answered it would be just under a standard, adult-sized soccer field.

Mr. Pauly clarified that the Master Plan called for a full-sized, adult field.

Chair Heberlein agreed with Mr. Ruby that a compromise could exist in looking at the design further. He was not sure what Staff's opinion was given all of the testimony from citizens.

Mr. Pauly confirmed with Ms. Connery that logistically, nothing would get done this construction season anyway even if it was approved tonight; adding only very preliminary grading had been done. He noted there were some specific deadlines in the development agreement that might need to be met.

Ms. Jacobson said she was not certain where they were with the deadlines, but if there was mutual agreement between Polygon and the City, and it sounded like Polygon was open to that, those deadlines could be amended if they were problematic.

Mr. Pauly added that due to deadlines, the review process could not be extended indefinitely, but because the application was deemed complete, the City had 120 days to review and render a decision, which included time for City Council if it were appealed. The 120-day deadline for this project was October 14th, so there was ample time to render a decision and allow for an appeal, even if it were continued to a September Panel A hearing.

Ms. Linville said she heard two issues during the testimony, one was in support and one was in opposition. While the City had offered an opportunity for public testimony tonight, she did not know if what the Board had heard was representative of the entire community. If Polygon was willing to do some of that, that would inform the Board. She believed there was some real validity to the concerns voiced tonight.

Ms. Willard added that she had driven by the site and it felt abrupt how the neighborhood hit the natural area. Therefore, she believed it would benefit from some blurring of the lines. Villebois was already quite polarizing; people either really liked or disliked it. If there was some kind of margin that was more at one with nature and introduced people to nature, it would be much better for all of the residents. Also, since proposed parks were on the furthest extents of Villebois, she believed the neighbors directly adjacent to them would have the most likely use and the Board would want to hear their points.

Chair Heberlein believed the Board should continue until the September DRB meeting to allow Staff and Polygon to have some more time to take citizen feedback into account.

Ms. Jacobson stated the Board could have further discussion, but at some point a motion would be needed to continue the hearing and leave the record open until a certain date.

Mr. Pauly explained continuing to August would be too soon as more time was needed to get public input, have the designs turned around, and to complete the reports and necessary noticing. The September meeting seemed to be a safe date, but if more time was needed the

hearing could be extended further into September; however, Polygon would probably need to put it in writing that they would toll the 120-day land use clock.

Ms. Jacobson asked if the Applicant had any more comments or suggestions.

Ms. Verdadero answered no. She believed some good points had been made about the open sports field, if that could be made more passive or compromised upon since it was now being looked at in a different way with Lowrie Primary School having been moved. It was also possible that many people who were favor of the park were not in attendance. She agreed those that faced the park were the most affected, and were presently getting the most quiet enjoyment from subject area at this time.

Mr. Frinell agreed with Mr. Ruby that the active components of the proposed design were not compatible with the nature of the whole reserve area. He would like to see the sports field, basketball court, and parking all eliminated.

Ms. Willard agreed.

Mr. Frinell added everyone had an opportunity to attend tonight's hearing and those who wished to be heard had attended and spoke this evening.

Joann Linville moved to continue the public hearing for Resolution No. 337 to the September 11, 2017 DRB Panel A meeting to allow for further testimony. Fred Ruby seconded the motion which passed unanimously.

VII. Board Member Communications

- A. Results of the May 22, 2017 DRB Panel B meeting
- B. Results of the June 26, 2017 DRB Panel B meeting

Dan Pauly, Senior Planner, briefly summarized the DRB Panel B hearings on the digital readerboards for the middle school and high school, both of which were approved. There was a lot of good discussion and some Code amendments could be coming because the Code currently prohibited digital readerboards unless approved by the DRB. Approving signs that were listed as prohibited was a bit confusing. In most cases, digital signs were prohibited unless very specific criteria in terms of brightness and hold time were met. Because that was more of a conditional allowance than a prohibition, editing the Code to perhaps make a section for conditionally-approved signs was being considered.

- The library also expressed interest in having a digital sign.
- He explained that there had been some commercial interest in using digital signs but nobody had gone forward yet.

C. Recent City Council Action Minutes

Joann Linville understood City Council had moved forward with the red light camera and asked if that was correct.

Ms. Jacobson replied Council voted to approve a traffic school diversion program and asked Staff to do some more research on red light cameras, such as looking for vendors, determining costs, etc., so the issue would come forward again. It was interesting to note that this last session, the legislature approved the use of the cameras for both speeders and red light runners, so there would be two things that could be done with those cameras if the City chose to use them.

VIII. Staff Communications:

Dan Pauly, Senior Planner, announced the Charbonneau Range Subdivision was under Final Plat Review and that houses could be expected to be built soon.

IX. Adjournment

The meeting adjourned at 8:36 pm.

Respectfully submitted,

Paula Pinyerd, ABC Transcription Services, Inc. for
Shelley White, Planning Administrative Assistant

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 11, 2017

6:30 PM

VI. Public Hearing:

A. Resolution No. 337. Villebois Regional Parks 7 & 8: Polygon Northwest – Applicant. The applicant is requesting approval of a Final Development Plan with Preliminary Development Plan Refinements and Type C Tree Plan for Regional Parks No. 7 and 8. The properties are located on the eastern edge of Villebois on Tax Lots 102, 192 and 200 of Section 15 and Tax Lots 13300, 13390, 13400, 15100, 29200 and 29290 of Section 15A, T3S, R1W, Clackamas County, Oregon.
Staff: Daniel Pauly

Case Files:

DB17-0011	Final Development Plan and Preliminary Development Plan Refinements
DB17-0020	Type C Tree Plan

This item was continued to this date and time certain at the July 10, 2017 DRB Panel A meeting

**DEVELOPMENT REVIEW BOARD
RESOLUTION NO. 337**

A RESOLUTION ADOPTING FINDINGS AND CONDITIONS APPROVING A FINAL DEVELOPMENT PLAN WITH PRELIMINARY DEVELOPMENT PLAN REFINEMENTS AND A TYPE C TREE PLAN FOR REGIONAL PARKS NO. 7 AND 8. THE PROPERTIES ARE LOCATED ON THE EASTERN EDGE OF VILLEBOIS ON TAX LOTS 102, 192 AND 200 OF SECTION 15 AND TAX LOTS 13300, 13390, 13400, 15100, 29200 AND 29290 OF SECTION 15A, T3S-R1W, CLACKAMAS COUNTY, OREGON. POLYGON NORTHWEST, APPLICANT.

WHEREAS, an application, together with planning exhibits for the above-captioned development, has been submitted in accordance with the procedures set forth in Section 4.008 of the Wilsonville Code, and

WHEREAS, the Planning Staff has prepared a staff report on the above-captioned subject dated July 3, 2017, and later amended, and

WHEREAS, said planning exhibits and staff report were duly considered by the Development Review Board Panel A at a scheduled meeting conducted on July 10, 2017, at which time exhibits, together with findings and public testimony were entered into the public record, and

WHEREAS, at the July 10, 2017 meeting Development Review Board Panel A continued the hearing to a date certain of September 11, 2017.

Whereas, Development Review Board Panel A held a scheduled meeting on September 11, 2017, at which time additional exhibits and additional public testimony were entered into the public record, and

WHEREAS, the Development Review Board considered the subject and the recommendations contained in the staff report, as amended, and

WHEREAS, interested parties, if any, have had an opportunity to be heard on the subject.

NOW, THEREFORE, BE IT RESOLVED that the Development Review Board of the City of Wilsonville does hereby adopt the staff report dated July 3, 2017, as amended, attached hereto as Exhibit A1, with findings and recommendations contained therein, and authorizes the Planning Director to issue permits consistent with said recommendations, for:

DB17-0011, DB17-0020 Final Development Plan with Preliminary Development Plan Refinements, Type C Tree Plan for the development of public parks.

ADOPTED by the Development Review Board of the City of Wilsonville at a regular meeting thereof this 11th day of September, 2017 and filed with the Planning Administrative Assistant on _____. This resolution is final on the 15th calendar day after the postmarked date of the written notice of decision per *WC Sec 4.022(.09)* unless appealed per *WC Sec 4.022(.02)* or called up for review by the council in accordance with *WC Sec 4.022(.03)*.

Ron Heberlein, Panel A Chair
Wilsonville Development Review Board

Attest:

Shelley White, Planning Administrative Assistant



Exhibit A1
Staff Report
Wilsonville Planning Division
Villebois Regional Park 7 and 8

Development Review Board Panel 'A'
Quasi-Judicial Public Hearing
Amended
Remove language ~~struck through~~
Added language ***underline***

Hearing Dates: July 10 ***and September 11***, 2017
Dates of Report: July 3, 2017, ***Amended August 31, 2017***

Application Nos.: DB17-0011 Final Development Plan
DB17-0020 Type C Tree Plan

Request/Summary: The Development Review Board is being asked to review a Class 3 Final Development Plan with Refinements to Preliminary Development Plans and Type C Tree Plan for development of a previously planned and approved park.

Location: Eastern edge of Villebois extending from just west of Villebois Drive North at Tooze Road to Barber Street. The property is specifically described as Tax Lots 102, 192, and 200 Section 15 and Tax Lots 13300, 13390, 13400, 15100, 29200 and 29290, Section 15AA, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon

Owners: Sparrow Creek LLC, City of Wilsonville, Metro

Applicant: Fred Gast, Polygon Northwest

Applicant's Representatives: Stacy Connery, Pacific Community Design (Planner)
Kerry Lankford, Pacific Community Design (Landscape Architect)

Comprehensive Plan Designation: Residential-Village

Zone Map Classification: V (Village)

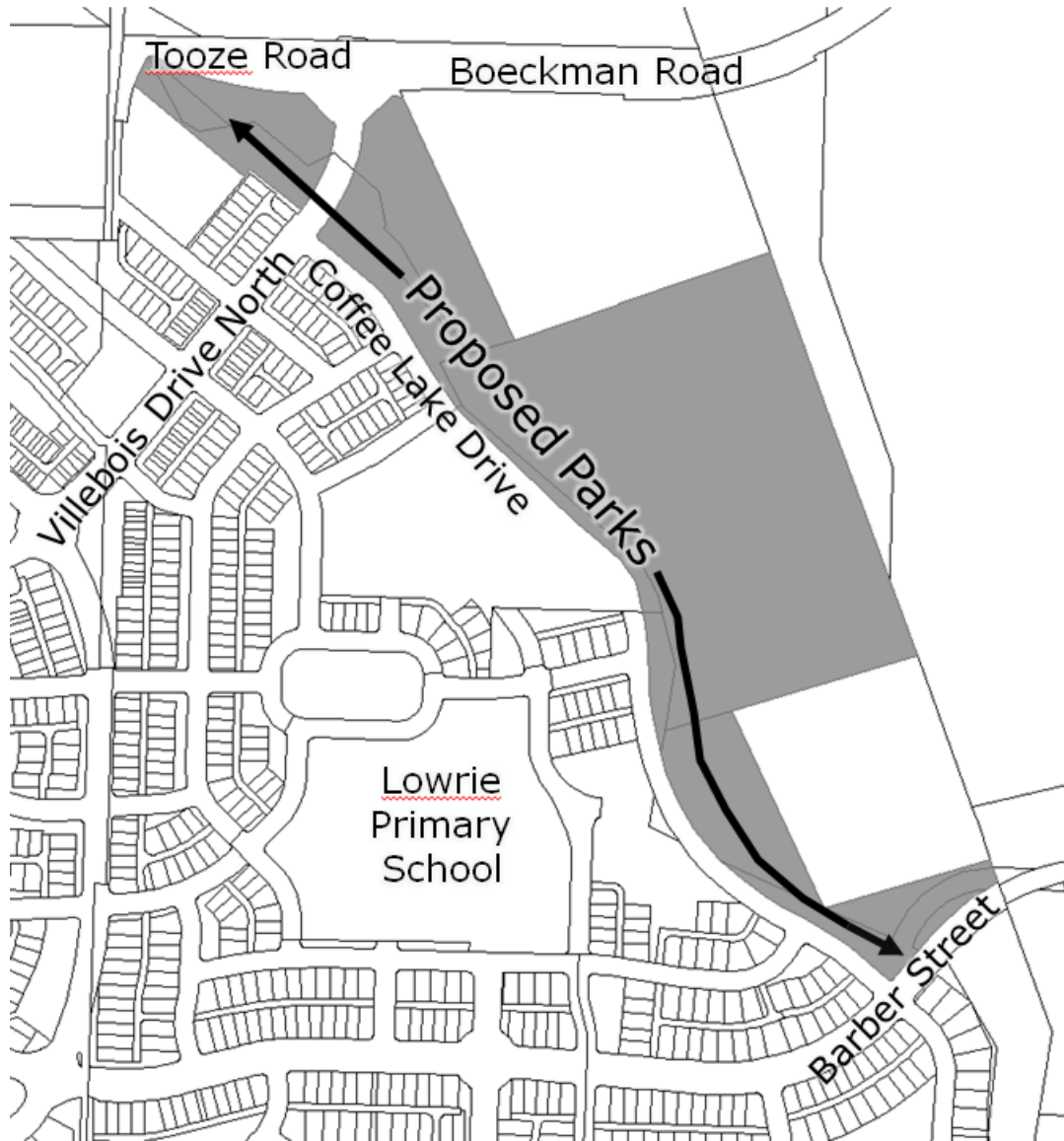
Staff Reviewers: Daniel Pauly AICP, Senior Planner
Steve Adams PE, Development Engineering Manager
Kerry Rappold, Natural Resources Program Manager
Mike McCarty, Parks and Recreation Director
Tod Blankenship, Parks Maintenance Supervisor

Staff Recommendation: Approve with conditions the requested Final Development Plan with Preliminary Development Plan Refinements and Type C Tree Removal Plan.

Applicable Review Criteria:

<u>Development Code:</u>	
Section 4.008	Application Procedures-In General
Section 4.009	Who May Initiate Application
Section 4.010	How to Apply
Section 4.011	How Applications are Processed
Section 4.014	Burden of Proof
Section 4.031	Authority of the Development Review Board
Subsection 4.035 (.04)	Site Development Permit Application
Subsection 4.035 (.05)	Complete Submittal Requirement
Section 4.110	Zones
Section 4.125	Village Zone
Sections 4.139 through 4.139.11	Significant Resource Overlay Zone (SROZ)
Section 4.154	On-site Pedestrian Access and Circulation
Section 4.155	Parking, Loading, and Bicycle Parking
Section 4.167	Access, Ingress, and Egress
Section 4.171	Protection of Natural Features and Other Resources
Section 4.172	Flood Plain Regulations
Section 4.175	Public Safety and Crime Prevention
Section 4.176	Landscaping, Screening, and Buffering
Section 4.177	Street Improvement Standards
Sections 4.199.20 through 4.199.60	Outdoor Lighting
Sections 4.300 through 4.320	Underground Utilities
Sections 4.400 through 4.440 as applicable	Site Design Review
Sections 4.600-4.640.20	Tree Preservation and Protection
<u>Other Planning Documents:</u>	
Wilsonville Comprehensive Plan	
Villebois Village Master Plan	
SAP East Approval Documents	
PDP 2 East and PDP 3 East Approval Documents	

Vicinity Map



Background/Summary:

Polygon, the City of Wilsonville, and Metro wish to build the next parks in the series of public Regional Parks planned in Villebois. The parks are shown in the Villebois Village Master Plan (Master Plan) with a number of amenities including public restrooms, shelters, general lawn plan, overlooks, basketball court, benches and tables, drinking fountains, and play structures.

Consistent with the Master Plan, the approved Specific Area Plan (SAP) East and Preliminary Development Plans (PDP) 2 East and 3 East set aside the subject area for public park use with the amenities listed in the Master Plan. The current request is for a Final Development Plan

defined as “a detailed review of proposed design features.” As part of a Final Development Plan, minor changes, or refinements, to the PDP, and consequently the SAP and Master Plan, are allowed within specific guidelines. In addition, the applicant requests approval of a tree removal plan.

Traffic and Parking

Traffic generation is not part of the scope of the current review as traffic generation for the PDPs, including the parks and surrounding residential development, occurred previously. The Village Zone and other development standards do not require any parking for the parks. As all parks in Villebois any parking planned was across the street and nearby on-street parking. As part of the proposed changes (refinements) from previous approved higher level plans, a 14-space off-street parking lot is proposed along Villebois Drive, which would be the only park specific off-street parking provided in Villebois. However, no development standards would support additional area of the parks be dedicated to increase off-street parking. The largest potential parking generator is the sports field in the northern portion of Regional Park 8 near where the off-street parking is planned. A condition of approval restricts the rental or scheduling of the sports field, which intends to reduce use to first-come first-serve use and eliminate traffic and parking generation from more formal games, tournaments, etc.

Discussion Points:

Legal Standing of Parks Programming in Villebois Village Master Plan and Other Previous Approvals

The design and programming of the park is driven by the Villebois Village Master Plan . The Master Plan is a component of the City’s Comprehensive Plan and as such has as strong of a legal status as any adopted policy or code in the City. The Master Plan is the primary policy or law on which the City is required to weigh approval of the park design. This makes significant variation from the Master Plan difficult. Any changes to the Master Plan would be a large undertaking. In addition, even if the Master Plan were changed the current park application would still be subject to the Master Plan in place at the time the application was submitted due to state law referred to as the “goal post rule” that says land use applications are subject to the regulations (including Master Plans, policies, etc.) in place at the time of the application. Any changes to the plan are limited to “Refinements” as specifically defined in Wilsonville Code.

Refinements in General, Additions versus Reductions

The refinement code language for parks measures reductions not additions. The specific language reads, “Changes to the nature or location of park type, trails, or open space that do not significantly reduce function, usability, connectivity, or overall distribution or availability of these uses in the PDP.” As has been historically interpreted, including with this project, this

code language liberally allows additions to the park, as long as it doesn't significantly affect another approved function, etc. Increasing lawn play area, adding a restroom, maintenance facility, creative play, habitat amenity, etc. doesn't reduce anything, thus being allowed changes under a refinement. In reviewing refinements, the main focus is any proposals to reduce amenities listed in the Master Plan, Specific Area Plan, and Preliminary Development Plan.

Villebois Village Master Plan Description of Regional Park 7 and Refinements

The Villebois Village Master Plan describes Regional Park 7 as follows:

RP-7 (3.01 acres)

Regional Park component 7 provides a connection to the Coffee Lake Natural Area. This area includes benches, a shelter, lawn area (100'x60'), picnic tables, and may include stormwater/ rainwater features.

RP-7 Amenities in Master Plan	Proposed	Explanations
General Lawn Play (100 by 60)	Yes	150' by 95'
Benches <u>(2)</u>	Yes	<u>6</u>
Tables <u>(1)</u>	Yes	<u>3</u>
Parking on-street	Yes	Not immediately adjacent or across street due to location, ped connections to nearby on-street parking.
Shelter	Yes	
Storm/Rain Elements	No	Moved to RP-8, built, does have wetland element
Additional Amenities Not Listed in Master Plan		
Creative Play		
Entry Plaza		
Habitat Amenity (Birds)		

Villebois Village Master Plan Description of Regional Park 8 and Refinements

The Villebois Village Master Plan describes Regional Park 8 as follows:

RP-8 North/Middle/South (9.20 acres)

Regional Park component 8 provides a continuation of the Villebois Greenway and a transition area between the residential areas of Villebois, the Coffee Lake Natural Area, and the Tonquin Geologic Area to the north. The eastern side of the Villebois Loop Trail will run through the park and connect to the Tonquin Trail in the north end of the park. This park will provide opportunities for both passive and active recreation. A basketball

court, play structures and creative play, an adult recreation soccer field (100yds. x 50yds.) and lawn play areas (130'x430') will be available for active play. An interpretive area will be located within this park with numerous overlooks (several of which are shelters), benches, tables, and drinking fountains providing opportunities for seating and informal gatherings. There will also be restrooms associated with the interpretive area and porta-potties associated with the soccer field for convenience. The design of this park will incorporate 2 wetlands with boardwalks as well as a series of stormwater/ rainwater features.

RP-8 Amenities in Master Plan	Proposed	Explanations
Child Play Structure <u>(2)</u>	Yes	<u>1</u>
Creative Child Play <u>(1)</u>	Yes	<u>6</u>
Drinking Fountain (3) <u>Fountains (4)</u>	Yes	Reduced to 2, spaced ¼ mile apart. Now combination fountain/bottle filler. Originally planned (Figure 5A of Master Plan) adjacent to sports field, restroom and main shelter, and basketball court. Sports field and basketball court are now next to each other so they can be served by a single fountain/bottle filler.
General Lawn Play (130 by 430) <u>1.28 acres</u>	Yes	Only 80' by 50' and 170' by 50', nearby school fields not contemplated when area set in Master Plan. <u>Reduction consistent with PDP approval which shows additional land as wetland. Provided lawn play plus added wetland is approximately 1.28 acres.</u>
Lawn Play, Soccer (100 by 50)	Yes	155' by 288'
Overlooks (numerous) <u>8</u> -4	Yes	5, 2 with shelters <u>6, 2 with shelters. 2 overlooks with shelters shown in feasibility drawings (Master Plan Appendix F) on Metro property. Metro only currently allowing development of 1 non-sheltered overlook on their property. Additional development of remainder of Metro property subject to potential future FDP.</u>
Benches <u>(27)</u>	Yes	<u>26</u>
Tables <u>(13)</u>	Yes	<u>11</u>
On-street parking	Yes	
Restroom (interpretative area) <u>1</u>	Yes	
Porta potties (by soccer field)	No	Replaced with permanent restroom stall in maintenance building in same area as porta potties planned

Shelter (several of overlooks ⁵)	Yes	2 Shelters ^{3 Shelters} . <i>2 shelters shown in feasibility drawings (Master Plan Appendix F) on Metro property. Metro only currently allowing development of 1 non-sheltered overlook on their property. Additional development of remainder of Metro property subject to potential future FDP.</i>
Meeting Room	No	Both nearby school facilities and the recreation building along Villebois Drive at Stockholm Ave were not contemplated when a meeting room was planned for RP-8 in master plan, those facilities provide indoor community space nearby and a meeting room is not necessary in RP-8.
½ court basketball	Yes	
Storm/Rain Elements (10)	Yes	
Trail connecting to greenway	Yes	
Boardwalks over wetlands	Yes	
Additional Amenities Not Listed in Master Plan		
Off-street parking (14 spaces)		
Parks Maintenance Building		

Parks and Recreation Advisory Board Recommendation

During their June 15th meeting the Parks and Recreation Advisory Board reviewed the park designs and unanimously forwarded a recommendation to approve the park designs to the Development Review Board with the following specific design recommendations:

- Make sure grading and landscaping stop balls from field from going into wetland
- List appropriate bird species for RP-7 and use appropriate bird boxes
- Remove planned new trees that would shade sundial feature
- Ensure there are safety guideline signs
- Consider vehicle charging stations in parking area
- Take measures to ensure sports field doesn't generate too much traffic/parking

Responses to Specific Public Comments

Parking

As stated in "Traffic and Parking" above, as with all parks in Villebois any parking planned was across the street and nearby on-street parking. As part of the proposed refinements, a 14-space

off-street parking lot is proposed along Villebois Drive, which would be the only park specific off-street parking provided in Villebois. However, no development standards would support additional area of the parks be dedicated to increase off-street parking. The largest potential parking generator is the sports field in the northern portion of Regional Park 8 near where the off-street parking is planned. A condition of approval restricts the rental or scheduling of the sports field, which intends to reduce use to first-come first-serve use and eliminate traffic and parking generation from more formal games, tournaments, etc.

Impact on Wildlife

The City's Significant Resource Overlay Zone (SROZ) regulations are in place to ensure the long-term preservation of important wildlife areas including wetlands, riparian areas, and upland forest habitat. The proposed development is outside the SROZ and adds a significant amount of native vegetation to provide wildlife habitat. As stated in the Villebois Village Master Plan description of Regional Park 8 the park is intended as a transition area between the residential portion of Villebois and the preserved Coffee Lake Natural Area and Tonquin Geological Area. There is a balance to be struck between wildlife habitat and allowing development. While there may always be disagreement on where this balance is and some wildlife may be disturbed by the proposed park amenities and programming, the current proposal is consistent with SROZ regulations and other regulations related to wildlife habitat in place related to this balance as well as the Master Plan.

Lack of Use of Basketball Court and Lack of Need/Desire for Sports Field

As reflected in the Villebois Village Master Plan, including Parks Policy 3, the Villebois park system aims at providing amenities for a variety of ages and interests, including active uses, while maintaining adequate areas of calm. The proposed park includes a number of calm and natural areas while accommodating the more active uses. The proposed basketball court and sports fields are allowed uses under the Village Zone, are amenities shown in Regional Park 8 in the Villebois Village Master Plan, and are supported by the design team, Parks staff, Planning staff, and the recommendation of the Parks and Recreation Advisory Board.

Already Sufficient Parks in Villebois/City, Concerns with Overdevelopment

While a sufficiency of parks, concern about over investment in parks, and over development in general are reasonable opinions to hold, they are not reflected in the adopted policies and plans related to development of the subject parks. The development of Regional Parks on the subject property was approved in the Villebois Village Master Plan, and subsequently Specific Area Plan East (SAP East) and its modifications as well as the Preliminary Development Plans (PDPs), or Phases, of SAP East. The current proposal is to review the layout and design and refine the amenities in preparation of constructing the approved parks.

Removal of Trees

Tree removal is limited to 8 trees, and a possible 9th, due to health and condition of the trees.

Interruption of View

As with most development, some views will change with addition of the park amenities and plantings, but the review process has not identified any compelling design changes supported by code to enhance a specific view corridor.

Increased Traffic and Congestion, Particularly from People Outside of Villebois

As Regional Parks, the parks are expected to draw people from outside Villebois. Traffic impacts for the park were approved in conjunction with adjacent subdivisions. As part of the refinement of the park design, 14 off-street parking spaces are proposed, which would decrease parking impacts on adjacent neighborhoods, and would be the only off-street parking provided for parks in Villebois. A concern about parking and congestion is the sports field. To reduce the amount of traffic and parking related to events at the field a condition of approval limits activities to first-come first-serve use, and no reservations, formal scheduling of games/practices will be done, or promotion of the field for events by the homeowners association or City.

Noise from Public Park Use, Particularly Sports Field

No design elements would create noise violating the City's noise ordinance and no design alternatives have been identified to reduce potential noise.

Litter

Trash cans are provided and regular maintenance is planned for the parks. The City has not received complaints about litter in other Regional Parks and this is not anticipated to be an issue with the planned parks.

Lighting impacting view

All lighting is dark sky friendly and will not glare into neighboring homes or neighboring wildlife habitat.

Dislike of Interactive Stream

The interactive stream feature proposed by the design team has been reviewed by Parks staff, including maintenance staff, as well as the Parks and Recreation Advisory Committee and no concerns have been raised. It is understood a variety of amenities are planned for a variety of park users and not all users will like or use every feature.

Conclusion and Conditions of Approval:

Staff has reviewed the Applicant's analysis of compliance with the applicable criteria. The Staff report adopts the applicant's responses as Findings except as noted in the Findings in this Staff Report. Based on the Findings and information included in this Staff Report, and information received from a duly advertised public hearing, Staff recommends that the Development Review Board approve the proposed applications (DB17-0011 and DB17-0020) with the following conditions:

Planning Division Conditions:

Request A: DB17-0011 Final Development Plan

PDA 1.	All construction, site development, and landscaping of the parks shall be carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. Minor alterations may be approved by the Planning Division through the Class I Administrative Review process.
PDA 2.	The applicant shall annex the proposed park into a homeowners association, which annexation document shall be reviewed by the City to ensure proper maintenance of the park during any period of homeowners association maintenance. In addition, the applicant shall enter into an Ownership and Maintenance Agreement with the City to cover the parks. See Finding A3.
PDA 3.	The homeowners association or City shall not rent or schedule events (games, tournaments, practices, etc.) on the sports field in Regional Park 8 or otherwise promote the field for formal games, tournaments, or practices in order to prevent traffic and parking formal scheduled events may generate. See Finding A7.
PDA 4.	The applicant shall submit final parks, landscaping and irrigation plans to the City

prior to construction of the parks. The irrigation plan must be consistent with the requirements of Section 4.176(.07) C. Plans for development within the 100 year flood plain shall be reviewed by the Community Development Director for compliance with flood plain regulations.

Request B: DB17-0020 Type C Tree Plan

- PDB 1.** This approval for removal applies only to the 8 trees identified in the Applicant’s submitted materials. All other trees on the property shall be maintained unless removal is approved through separate application.
- PDB 2.** The Applicant shall submit an application for a Type ‘C’ Tree Removal Permit on the Planning Division’s Development Permit Application form, together with the applicable fee. In addition to the application form and fee, the Applicant shall provide the City’s Planning Division an accounting of trees to be removed within the project site, corresponding to the approval of the Development Review Board. The applicant shall not remove any trees from the project site until the tree removal permit, including the final tree removal plan, have been approved by the Planning Division staff.
- PDB 3.** Prior to site grading or other site work that could damage trees, the applicant shall install six-foot-tall chain-link fencing around the drip line of preserved trees. The fencing shall comply with Wilsonville Public Works Standards Detail Drawing RD-1230. See Finding B14.

The following Conditions of Approval are provided by the Engineering, Natural Resources, or Building Divisions of the City’s Community Development Department or Tualatin Valley Fire and Rescue, all of which have authority over development approval. A number of these Conditions of Approval are not related to land use regulations under the authority of the Development Review Board or Planning Director. Only those Conditions of Approval related to criteria in Chapter 4 of Wilsonville Code and the Comprehensive Plan, including but not limited to those related to traffic level of service, site vision clearance, recording of plats, and concurrency, are subject to the Land Use review and appeal process defined in Wilsonville Code and Oregon Revised Statutes and Administrative Rules. Other Conditions of Approval are based on City Code chapters other than Chapter 4, state law, federal law, or other agency rules and regulations. Questions or requests about the applicability, appeal, exemption or non-compliance related to these other Conditions of Approval should be directed to the City Department, Division, or non-City agency with authority over the relevant portion of the development approval.

Engineering Division Conditions:

- PF 1.** Public Works Plans and Public Improvements shall conform to the “Public Works Plan Submittal Requirements and Other Engineering Requirements” in Exhibit C1.

Natural Resources Division Conditions:

NR 1. Natural Resource Division Requirements and Advisories listed in Exhibit C2 apply to the proposed development.

Master Exhibit List:

The following exhibits are hereby entered into the public record by the Development Review Board as confirmation of its consideration of the application as submitted. This is the exhibit list that includes exhibits for Planning Case Files DB17-0011 and DB17-0020.

Planning Staff Materials

- A1.** Staff report and findings (this document)
- A2.** Staff's Presentation Slides for July 10, 2017 Public Hearing (~~to be presented at Public Hearing~~)
- A3.** Staff's Presentation Slides for September 11, 2017 Public Hearing (to be presented at Public Hearing)
- A4.** August 31, 2017 Memorandum explaining changes to Staff Report

Materials from Applicant

- B1.** Applicant's Notebook
 - Section I General Information
 - IA) Introductory Narrative
 - IB) Form/Ownership Information
 - IC) Fee Calculation/Copy of Check
 - ID) Mailing List (Note: separate list generated by City for mailing)
 - Section II Final Development Plan
 - IIA) Supporting Compliance Report
 - IIB) Reduced FDP Plan Set (same as Exhibit B2)
 - IIC) Flood Plain Memo
 - IID) Tree Report
 - IIE) Republic Services Approval Letter
 - Section III Tree Removal Plan
 - IIIA) Supporting Compliance Report
 - IIIB) Tree Report
 - IIIC) Tree Preservation Plan
- B2.** Drawings and Plans

Development Review Team Correspondence

- C1. Engineering Division Conditions, Comments, Requirements
- C2. Natural Resources Findings, Conditions, and Requirements

Public Correspondence

- D1. Email Comments from James Brown III
- D2. Email Comments from Corbin Bowen
- D3. Email Comments from Lisa Chang

Procedural Statements and Background Information:

1. The statutory 120-day time limit applies to this application. The application was received on March 8, 2017. On April 7, 2017 staff conducted a completeness review within the statutorily allowed 30-day review period and found the application to be incomplete. On May 18, 2017, the Applicant submitted new materials. On June 16, 2017 the application was deemed complete. The City must render a final decision for the request, including any appeals, by October 14, 2017.
2. Surrounding land uses are as follows:

Compass Direction	Zone:	Existing Use:
North:	V/RA-H	Vacant wetlands
East:	V/RA-H	Vacant wetlands
South:	V	Residential
West:	V	Residential

3. Previous Planning Approvals:

Legislative:

Legislative:

- 02PC06 - Villebois Village Concept Plan
- 02PC07A - Villebois Comprehensive Plan Text
- 02PC07C - Villebois Comprehensive Plan Map
- 02PC07B - Villebois Village Master Plan
- 02PC08 - Village Zone Text
- 04PC02 – Adopted Villebois Village Master Plan
- LP-2005-02-00006 – Revised Villebois Village Master Plan
- LP-2005-12-00012 – Revised Villebois Village Master Plan (Parks and Recreation)

Quasi Judicial:

04 DB 22 et seq – SAP-East
DB05-0011 et seq – PDP-1E, Legend at Villebois
DB11-0047 et seq – PDP-2E, Retherford Meadows
DB12-0042 et seq – PDP 3E, Tonquin Meadows at Villebois
AR13-0046 – SAP East Phasing Amendment

4. The applicant has complied with Sections 4.013-4.031 of the Wilsonville Code, said sections pertaining to review procedures and submittal requirements. The required public notices have been sent and all proper notification procedures have been satisfied.

Findings:

NOTE: Pursuant to Section 4.014 the burden of proving that the necessary findings of fact can be made for approval of any land use or development application rests with the applicant in the case.

General Information

Application Procedures-In General

Section 4.008

The application is being processed in accordance with the applicable general procedures of this Section.

Initiating Application

Section 4.009

The application has been submitted on behalf of the property owners, Sparrow Creek LLC, City of Wilsonville, and Metro. The applicant obtained signatures from each owner. Copies of the application forms are in the applicant's notebook, Exhibit B1.

Pre-Application Conference

Subsection 4.010 (.02)

The City held pre-application conferences for the related PDPs, no additional pre-application meeting was necessary for the Final Development Plan.

Lien Payment before Approval

Subsection 4.011 (.02) B.

No applicable liens exist for the subject property. The application can thus move forward.

General Submission Requirements

Subsection 4.035 (.04) A.

The applicant has provided all of the applicable general submission requirements contained in this subsection.

Zoning-Generally

Section 4.110

This proposed development is in conformity with the applicable zoning district and general development regulations listed in Sections 4.150 through 4.199 have been applied in accordance with this Section.

Request A: DB17-0011 Final Development Plan with PDP Refinements

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Village Zone Standards

Permitted Uses in the Village Zone

Subsection 4.125 (.01)

- A1.** The applicant proposes a variety of park uses in an area shown for such uses in the Villebois Village Master Plan, SAP East, and PDP 3 East and PDP 2 East and meeting the permitted use description in the Village Zone of “non-commercial parks, plazas, playgrounds, recreational facilities, community buildings and grounds, tennis courts, and other similar uses.”

Amount of Parks and Open Space in the Village Zone

Subsection 4.125 (.08)

- A2.** The Development Review Board and City Council previously found the 25% minimum area in open space for SAP East was met. The proposed development of a park in an area designated in the SAP and subsequent PDP’s for park land is consistent with the previous findings regarding the amount of parks and open space in the Village Zone.

Protection and Maintenance of Parks and Open Space

Subsection 4.125 (.08) C.

- A3.** Condition of Approval PDA 2 requires the applicant/owner to submit a Declaration of Annexation to an HOA as well as an Ownership and Maintenance Agreement ensuring appropriate maintenance of the park and laying out the turnover of the park to the City for ownership and maintenance.

Master Signage and Wayfinding

Subsection 4.125 (.12)

- A4.** All signs will be in compliance with the adopted Signage and Wayfinding Plan for SAP East, including the entry signs at Villebois Drive and Boeckman/Tooze Roads.

Lighting and Site Furnishings

Subsection 4.125 (.13)

- A5.** Lighting fixtures, benches, picnic tables, trash cans, and other site furnishings are consistent with the SAP East Community Elements Book.

Permitted Building Materials and Configurations for Commercial Buildings Outside Village Center

Table V-3

- A6.** The materials used for the restroom building, the maintenance/restroom building, and the shelters and gazebos are among the listed permitted materials and in permitted configurations.

Village Zone Standards-Parking

Minimum and Maximum Off Street Parking Requirements

Subsection 4.125 (.07) B.

- A7.** Table V-2 in the Village Zone does not require any off-street parking for the park uses planned. However, 14 off-street parking spaces are provided to serve the sports field and other amenities in the northern portion of Regional Park 8. Condition of Approval PDA 3 requires the sports field not be promoted, advertised, or rented by the HOA or City for tournaments, formal games, formal practices, etc. to reduce parking demand from these activities that typically attract more people.

Bicycle Parking

Subsection 4.125 (.07) D.

- A8.** Table V-2 in the Village Zone does not require any bicycle parking for the park uses planned. However, racks are provide throughout the park as follows:
- Rack (4 spaces) in Regional Park 7 entry plaza at Villebois Drive and Tooze Road.
 - Rack (4 spaces) adjacent to basketball court in northern portion of Regional Park 8
 - Rack (4 spaces) in Regional Park 8 entry plaza at Villebois Drive and Coffee Lake Drive
 - Rack 4 spaces near main playground in Regional Park 8

Village Zone – Final Development Plan Standards and Approval Criteria

Final Development Plan Standards-Site Design Review

Subsection 4.125 (.18) N. and P. 1.

- A9.** The Site Design Review standards of Section 4.421 are being applied as required by this subsection. See Findings A33 through A41.

Conformance with the Community Elements Book

Subsection 4.125 (.18) N. and P. 1.

- A10.** All elements are consistent with the SAP East Community Elements Book.

Village Zone – Refinements

Refinements Generally

Subsection 4.125 (.18) O.

A11. Proposed refinements from previously approved Master Plan and Specific Area Plan as approved in the Preliminary Development Plan include changes to the nature of the park and the amenities thereof which do not significantly reduce function, usability, connectivity, or overall distribution or availability of these uses in the PDP. Regional Park 8 spans a number of PDP's, particularly PDP 2 East (Retherford Meadows) and PDP 3 East (portion of Tonquin Meadows subdivisions), and is near the school only PDP 2a East, and the remainder of Tonquin Meadows, PDP 4 East. PDP's were originally envisioned as neighborhoods, but in practice ended up being divided by ownership and construction phasing. For the purpose of these FDP refinements staff understands the PDP to mean the nearby area, or neighborhood, as intended in the Master Plan. A neighborhood is typically defined, including in the Villebois Village Concept Plan, by a ¼ mile or 5 minute walk. Therefore, the PDP for the purpose of refinements is defined by a ¼ mile buffer from the proposed parks. See also Finding 12 below. Also, an existing stormwater facility in RP 7 is being relocated, but it does not significantly reduce the service or function of the facility.

Refinements to Parks, Trails, and Open Space

Subsection 4.125 (.18) O. a. ii.

A12. The requested refinements includes the removal and addition of a number of amenities as listed and described on pages 6-9 of the applicant's supporting compliance report, Section IIA of their notebook, Exhibit B1. Amenities proposed for expansion or addition in Regional Park 7 include: expansion of lawn play from 0.14 acres to 0.32 acres, addition of creative play features, addition of an entry plaza, and addition of habitat amenities for birds. The park amenities proposed for reduction or exclusion for Regional Park 8 are: reduction of drinking fountains from 3 to 2, reduction of amount of general lawn play from 1.28 acres to 0.29 acres, ~~removal of a meeting room~~ *in the number of benches and tables*, and removal of porta potties (replaced by restroom stall). Amenities or features proposed for addition in Regional Park 8 include: addition of maintenance building, replacement of porta potties with additional restroom stall in the maintenance building, and addition of 14 off-street parking spaces.

The location of the proposed parks remains the same, and thus the overall distribution and availability of park uses in the adjoining PDP's remains constant, so the evaluation of changes focus on the nature of the parks and whether the nature of the parks in regards to function, usability, connectivity is "significantly" impacted by the changes in amenities. No changes affecting connectivity are proposed, thus each change will be discussed in relation to function and usability.

Significance, in a both quantifiable and qualitative sense, is specifically addressed in subsections and findings below. This finding will be limited to a general discussion of the impact of the amenity changes in relation to function, and usability. As stated on page 19 of Villebois Village Master Plan park features listed in the Master Plan are subject to refinement.

RP 8: Reduction in General Lawn Play Area

Function: ~~With the primary school and its substantial amount of open lawn plan relocated to a location near the park, from their original master planned location, much more lawn play function is available than originally contemplated for this area of Villebois. Thus, the reduction of the lawn play area will not reduce the availability of general lawn play area below what was originally envisioned for this area of Villebois.~~

Usability: ~~The lawn play areas at Lowrie Primary School are much more usable than the lawn areas originally contemplated in Regional Park 8.~~

RP 8: Reduction in the Number of Drinking Fountains

Function: As shown in Figure 5A of the Villebois Village Master Plan drinking fountains were planned adjacent to the sports field, adjacent to the restrooms and main shelter, and adjacent to the basketball court. The basketball court is now designed to be next to the sports field, thus a single fountain/water bottle filler can be placed to serve both amenities, thus not reducing function to these major amenities. The combined water fountain/bottle fillers will be more functional than the originally contemplated drinking fountains.

Usability: From a location standpoint, the drinking fountains planned will be equally usable to users of the sports field, basketball court, and main shelter/restroom area. Also the ability to more easily fill a water bottle will make the planned fountains more usable.

RP 8: Removal of Meeting Room

Function: ~~The function of a meeting room is met in the nearby neighborhoods by Lowrie Primary School and the recreation building along Villebois Drive at Stockholm Avenue. Neither of these spaces were planned when the meeting room was originally planned for Regional Park 8.~~

Usability: ~~Indoor space is available through the school district at the primary school. Also, the recreation building includes a club room to serve as meeting space for the neighborhood.~~

RP 8: Reduction in the Number of Benches and Tables

Function: The function of the benches and tables will remain overall substantially the same with the small reduction in numbers.

Usability: The usability of the benches and tables will remain overall substantially the same with the small reduction in numbers.

RP 8: Replacement of Portapotties with Restroom Stall in Maintenance Building

Function: Restroom facilities continue to be available near the sports field and other amenities in the northern portion of Regional Park 8. The permanent stall will substantially fulfill the same function as the porta potties.

Usability: Having a year-round, more easily maintained restroom facility, will provide the same or improved usability with increased comfort for users.

RP 7: Increase in lawn play area, addition of creative play, entry plaza, and habitat amenities for birds

Function: These amenities add additional function for park users while still allowing for activity areas listed in the Master Plan.

Usability: The added amenities will still allow the usability of the park for the master planned activities; including quiet and natural areas, while allowing for additional activities.

RP 8: Increase in the number of creative play features, addition of maintenance building, addition of off-street parking.

Function: These amenities and features add additional function for park users while still allowing for activity areas listed in the Master Plan.

Usability: The added amenities will still allow the usability of the park for the master planned activities, including quiet and natural areas, while allowing for additional activities and services.

Refinements to Utilities or Stormwater Facilities

Subsection 4.125 (.18) O. a. iii.

- A13.** An existing stormwater facility in RP-8 is being relocated, but it does not significantly reduce the service or function of the facility and its relocation allows for the park to also offer a creative stream bed and interactive activity space.

Defining "Significant" for Refinements: Quantifiable.

Subsection 4.125 (.18) O. 1. b. i.

A14. The matters, requirements, or performance measures in (.18) O. 1. a. related to parks include: nature of park type, location of park types, reduction of function of park type, trails, or open space, reduction of usability of park type, trails, or open space, reduction of connectivity of park type, trails, or open space, overall distribution and availability of uses. The reduction of function by 10% or more would be considered "significant" and not reviewable as a refinement. An analysis of each is provided below together with a discussion to the extent to which it is quantifiable and whether it changes by 10% or more.

Nature of Park Type: This is quantifiable as the number of each park type (i.e. neighborhood park, regional park, pocket park). No change to the number of different park types is proposed. Arguably the number of different amenities could be included under the nature of the park, however, this is covered under function and usability of parks below.

Location of Park Type, Overall Distribution and Availability of Park Uses: This is quantifiable as the planned location of each type of park. No changes to park numbers or locations are proposed.

Reduction of Function of Park Type: This is quantifiable as a reduction of the overall number of major amenities. ~~For both the reduced lawn play area in Regional Park 8 and removal of the meeting room the function. There is maintained elsewhere nearby, thus no~~ reduction in the overall number of function major amenities. For the drinking fountains, they are supporting amenities to be a secondary component of an area or activity area. As shown in Figure 5A of the Villebois Village Master Plan drinking fountains were planned adjacent to the sports field, adjacent to the restrooms and main shelter, and adjacent to the basketball court. The basketball court is now designed to be next to the sports field, thus a single fountain/water bottle filler can be placed to serve both amenities, thus not reducing function to these major amenities. The small reduction in number of benches and tables also do not reduce the function of major amenities.

Reduction of Usability of Park Type: The usability of the park is closely tied to the number of function. As there is, quantifiably speaking, no significant reduction in the number of functions in the park, the park maintains a significantly similar level of usability.

Defining "Significant" for Refinements: Qualitative

Subsection 4.125 (.18) O. 1. b. ii.

A15. This subsection does not provide clear definition of what an important qualitative feature might be for use in determining whether a proposed change to parks, trails, or open space is significant. Absent details in this subsection, staff interprets the primary qualitative factors to consider as the three guiding design principles of the Villebois Village Master

Plan: Connectivity, Diversity, and Sustainability. The three guiding design principles are further defined by the goals, policies, and implementation measures of the Master Plan. By virtue of better or equally implementing the goals, policies, and implementation measures of the Villebois Village Master Plan, as described in Finding A16 below, the proposed refinements do not significantly affect parks in a qualitative sense.

Refinements Meet PDP Conditions

Subsection 4.125 (.18) O. 2. a.

A16. PDP reference to the parks directly reflects the Villebois Village Master Plan, so remaining consistent with the Master Plan includes remaining consistent with the PDP and its conditions by equally or better meeting the affected goals, policies, and implementation measures of the Master Plan as described below:

Goal: The Parks system within Villebois Village shall create a range of experiences for its residents and visitors through an interconnected network of pathways, parks, trails, open space and other public spaces that protect and enhance the site's natural resources and connect Villebois to the larger regional park/open space system.

Response: The goal is better met by increasing the overall number of park experiences thus increasing the range of experiences available in the park and park system. At the same time the park amenities focus on the parks' natural locations on the wetland edge and their planned transitional function from homes to natural area.

Policy 3: Parks shall encourage the juxtaposition of various age-oriented facilities and activities while maintaining adequate areas of calm.

Response: Amenities for a variety of ages are provided including many overlooks, trail areas, etc. for calm.

Policy 9: Parks and recreation spaces shall provide for flexibility over time to allow for adaptation to the future community's park, recreation and open space needs.

Response: The policy is better met by first allowing adaptation of the now decade plus old preliminary design and amenity list to current understanding of the site and desired amenities. It is equally met by being designed where different amenities can be changed and adapted over time similar to the typical park design in Villebois.

Implementation Measure 1: Future and pending development applications within Villebois (Specific Area Plans, Preliminary Development Plans and Final Development Plans) shall comply with the park, trail, open space system proposed in Figure 5 – Parks and Open Space Plan, Figure 5A – Recreational Experiences Plan, and Table 1: Parks Programming. Refinements may be approved in accordance with Village Zone section 4.125(.18)(F).

Response: This implementation measure is equally met as the park is complying with the referenced figures and table except for the allowed refinements.

Implementation Measure 20: The adequacy, amount and location of the proposed parking (including ADA parking) necessary to serve the proposed park uses shall be evaluated in detail at the SAP and PDP level. Off-street parking may be required to serve the various park users.

Response: Off-street parking is proposed to support the amenities on the northern end of Regional Park 8 and reduce parking demand for nearby streets consistent with this implementation measure.

Refinements No Negative Impacts to Natural or Scenic Resources

Subsection 4.125 (.18) O. 2. b.

A17. The proposed refinements does not negatively impact any identified environmental or scenic resources and keeps the park development for active uses outside the Significant Resource Overlay Zone (SROZ).

Refinements Effect on Subsequent PDP's and SAP's

Subsection 4.125 (.18) O. 2. c.

A18. All adjoining PDP's and SAP's have been granted land use entitlements and are substantially built or will be built prior to the park. The refinements have no effect on the ability for adjacent development to be built as planned and approved.

Significant Resource Overlay Zone (SROZ)

SROZ Development Regulations

Sections 4.139.03

A19. While a significant wetland within the City's SROZ exists adjacent to the park development, the planned improvements remain outside the SROZ.

General Development Standards

On-Site Pedestrian Access and Circulation

Section 4.154

A20. Pathways are continuous connecting throughout the proposed parks providing safe, direct, and convenient connections to streets and park features. Pathways are separate from vehicle travel lanes by either vertical curbs or by separation by landscaping. Crosswalks on streets currently exist, where the sidewalk crosses the proposed parking area it will be clearly marked with contrasting paint. Primary and secondary trails will be surfaced with concrete except for boardwalk crossings on secondary trails, which will be 2 by 6 recycled lumber. Pathways will be clearly marked with approved signs.

Flood Plain Regulations

General Provisions Affecting Flood Plains Subsection 4.172 (.02)

A21. The proposed grading and parking improvements for RP 8 are partially located within a flood plain. All proposed materials and equipment will be designed to be anchored, and will be resistant to flood damage. Construction methods and practices will minimize flood damage. A memo written by the engineer is included in section IIC (of applicant's notebook) detailing proposed cut/fill within the flood plain.

Permitted Uses and Flood Plain Permits Subsections 4.172 (.03) and (.04)

A22. Most of the recreational uses for RP-8 fall under the outright permitted uses in the 100-year Flood Plain. Some of the proposed structures and the proposed grading necessitate a Flood Plain Permit.

Flood Plain Permits Reviewed Associated with DRB Application Reviewed by DRB and Community Development Director Subsection 4.172 (.06) E.

A23. The subject Flood Plain Development Review is submitted in conjunction with the FDP, and will therefore be reviewed by the DRB in conjunction with the FDP review. Final construction drawings will be reviewed by the Community Development Director.

Flood Plain Standards: Anchoring Required Subsection 4.172 (.07) A.

A24. Structures and features within the flood plain will be anchored to prevent flotation, collapse, or lateral movement in a flood.

Flood Plain Standards: Construction Standards Subsection 4.172 (.07) B. and F.

A25. All features within the flood plain are constructed of materials and in a manner to resist flood damage. Particularly the planned shelter within the flood plain will be flood proof construction. Flood proofing will be certified by the Community Development Director.

Flood Plain Standards: Elevation Data for Review with Building Permit Subsection 4.172 (.07) K.

A26. Elevation data for the 100-Year Flood Plain will be shown on site plans submitted with Building Permits for structures within the Flood Plain.

Landscape Standards

Landscape Standards and Compliance with Code Subsection 4.176 (.02) B.

A27. No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Landscape Area Required and Locations Subsection 4.176 (.03)

A28. The majority of the park is covered with vegetative plant materials exceeding the required 15% with plantings in a variety of areas, as required.

Plant Materials Subsection 4.176 (.06)

A29. Applicant's sheets L2.1 through L2.7 in their plan set, Exhibit B2, indicate the size and material requires for shrubs, trees, and other plant material are met. All plants are among those allowed by the SAP East Community Elements Book. The plans include an abundant amount of native shrubs and trees. No tree credits are being requested for preserved trees. The selected landscape materials do not violated any height or vision clearance requirements.

Landscape Installation and Maintenance Subsections 4.176 (.07) and 4.450 (.03)

A30. The installation and maintenance standards will be ensured by City construction plan review and construction and the maintenance requirements of the O&M agreement.

Landscape Plans Subsection 4.176 (.09)

A31. The applicant submitted landscape plans, drawn to scale, showing all existing and proposed landscape area and required information about materials and installation. See applicant's sheets L2.1 through L2.7 in their plan set, Exhibit B2.

Completion of Landscaping Subsections 4.176 (.10) and 4.450 (.01)

A32. The City's inspection process prior to accepting the park will ensure the required landscaping is installed.

Site Design Review

Excessive Uniformity, Inappropriateness of Design, Etc. Not Allowed Subsection 4.400 (.01)

A33. *Excessive Uniformity:* The proposed design is specific to this particular park and does not create excessive uniformity.

Inappropriate or Poor Design of the Exterior Appearance of Structures: The professionally designed park is tailored for this application and provides an appropriate design.

Inappropriate or Poor Design of Signs: Professionally designed signs will be installed consistent with the Villebois Master Sign and Wayfinding Plan.

Lack of Proper Attention to Site Development: Use of the appropriate professional services demonstrates appropriate attention to site development.

Lack of Proper Attention to Landscaping: Professionally designed landscaping includes a variety of plant materials and demonstrates appropriate attention to landscaping.

Purpose and Objectives of Site Design Review

Subsection 4.400 (.02)

A34. Information provided by the applicant sufficiently demonstrates compliance with the purposes and objectives of site design review. The professional design and thorough city and public review assures proper site function, allows for innovation in site planning demonstrated by the variety of unique features, avoids monotonous and drab development, enhances and reflects the natural beauty of the area, and enhances appeal and adds value to Villebois. Further, park users will benefit from a pleasant environment, which will support the civic pride in a great park system, and help sustain the pleasing environment established in Villebois and Wilsonville.

Development Required to be Consistent with DRB Approval

Section 4.420, Subsections 4.450 (.02) and (.04)

A35. Condition of Approval PDA 1 ensures, pursuant to these sections, construction, site development, and landscaping are carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. No grading or other permits will be granted prior to Development Review Board approval.

Design Standards: Preservation of Landscaping and Grading

Subsection 4.421 (.01) A.

A36. The landscaping is enhanced by adding a large amount of native vegetation in areas previously disturbed or dominated by invasive plant species. Grading allows for development of the planned features while keeping the natural decent into the Coffee Lake Wetland.

Design Standards: Relation of Proposed Buildings to Environment
Subsection 4.421 (.01) B.

A37. Chapter 3 of the Villebois Village Master Plan takes into account scenic views, topography, existing vegetation, and other natural features in the design and location of parks and open spaces in the Villebois development. The FDP area includes areas of steep slopes, sensitive wildlife habitat areas, wetlands, nearby SROZ areas, flood plain areas, and existing trees. These areas are all shown on the attached plans. The FDP includes elements specified for RP-7 & 8 within the Master Plan. The FDP includes connections to surrounding streets, sidewalks, and pathways.

Design Standards: Drives, Parking, and Circulation
Subsection 4.421 (.01) C.

A38. The professional design, and subsequent careful City staff, Parks Board, and Development Review Board review, of the drives, parking, and vehicle and pedestrian circulation areas demonstrates special attention given to location and number of access points. The parking area meets all applicable standards in Sections 4.125, 4.154, and 4.155 and provides convenient access near major amenities in the park.

Design Standards: Surface Water Drainage
Subsection 4.421 (.01) D.

A39. The professional designed drainage is consistent with the drainage systems approved in the applicable Preliminary Development Plans.

Design Standards: Utility Service
Subsection 4.421 (.01) D.

A40. The utilities are consistent with the previously reviewed and approved Preliminary Development Plans.

Applicability of Design Standards
Subsection 4.421 (.02)

A41. All buildings, structures, and other park features are being reviewed under the design standards.

Request B: DB17-0020 Type C Tree Removal Plan

Review Authority

Subsection 4.610.00 (.03) B.

- B1.** The requested removal is connected to site plan review by the Development Review Board for new development. The tree removal is thus being reviewed by the DRB.

Conditions of Approval Tree Ordinance Met

Subsection 4.610.00 (.06) A.

- B2.** No additional conditions are recommended pursuant to this subsection to ensure the intent of the tree ordinance is met.

Completion of Operation Timely

Subsection 4.610.00 (.06) B.

- B3.** It is understood the tree removal will be completed at the time of park construction, which is a reasonable time frame.

Security for Permit Compliance

Subsection 4.610.00 (.06) C.

- B4.** No bond is anticipated to be required to ensure compliance with the tree removal plan as a bond is required for overall landscaping.

Tree Removal Standards: SROZ

Subsection 4.610.10 (.01) A.

- B5.** The tree proposed for removal is within the Significant Resource Overlay Zone. The subject tree, 6847B, is an English Hawthorne in poor construction. Its removal is consistent with the allowances for removal.

Tree Removal Standards: Preservation and Conservation

Subsection 4.610.10 (.01) B.

- B6.** The vast majority of trees existing within the park are preserved demonstrating tree preservation was an important consideration in the design of the park.

Tree Removal Standards: Development Alternatives to Preserve Trees

Subsection 4.610.10 (.01) C.

- B7.** No significant wooded areas or trees would be preserved by design alternatives. The trees being removed are due to tree health and condition rather than park design.

Tree Removal Standards: Land Clearing Limited to What is Necessary
Subsection 4.610.10 (.01) D.

- B8.** Land clearing is limited to area necessary for improvements and no land clearing is negatively affecting preserved trees.

Tree Removal Standards: Relocation/Replacement of Removed Trees
Subsection 4.610.10 (.01) G.

- B9.** The applicant proposes remove 8 trees due to health and condition, and will plant many additional trees, including natives, far exceeding the required replacement.

Tree Removal Standards: Limitations on Tree Removal
Subsection 4.610.10 (.01) H.

- B10.** Tree removal is limited to health and condition reasons, which fall within the limitations set in this subsection.

Tree Removal Standards: Additional Standards for Type C Tree Removal
Subsection 4.610.10 (.01) I.

- B11.** The applicant submitted the required tree maintenance and protection plan, and no utility placement is impacting trees.

Tree Maintenance and Protection Plan
Section 4.610.40 (.02)

- B12.** The applicant has submitted the necessary copies of a Tree Maintenance and Protection Plan. See the applicant's notebook, Exhibit B1. The Arborist Report and tree locations are in Section IIIB and IIIC.

Replacement and Mitigation

Tree Replacement Requirements
Section 4.620.00

- B13.** The applicant proposes removing 8 trees, and a potential 9th, due to health and condition, and will plant many additional trees, including many natives, far exceeding the required replacement. New trees are shown the required size and include many native trees. Non-native trees are limited to more formal landscape areas where tree characteristics are appropriate for the locations.

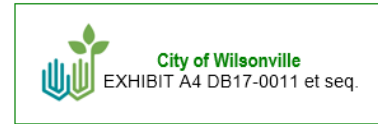
Protection of Preserved Trees

Tree Protection During Construction
Section 4.620.10

- B14.** Condition of Approval PDB 3 requires six-foot-tall chain link fencing around the drip line of preserved trees complying with Wilsonville Public Works Standards Detail RD-1230.



Planning Division Memorandum



From: Daniel Pauly AICP, Senior Planner
To: Development Review Board Panel 'A'
Date: August 31, 2017
RE: Amendments to Staff Report for Regional Park 7 & 8

Staff recommends a number of amendments to the Staff Report published July 3, 2017 for the Final Development Plan for Regional Park 7 and 8 in Villebois. This memo provides explanation and/or additional detail on the recommended amendments, ordered and referenced by page number in the August 31 amended version of the Staff Report.

Page 4

Two additional discussion topics are added in response to questions asked of staff since the July hearing. One topic discusses the legal standing of the parks programming in the Villebois Village Master Plan, the other discusses how refinements test reduction of park amenities but not additions allowing significant leeway for additions to parks.

Page 5

Since the July hearing staff found more specific details on the number of minor amenities, such as benches and tables, planned for each park. The table evaluating compliance with Master Plan amenities for Regional Park 7 adds details about how many benches (2) and how many tables (1) are listed in the Master Plan as well as how many benches (6) and how many tables (3) are proposed.

Pages 6 and 7

Since the July hearing staff discovered additional details and information regarding a number of major and minor amenities in the Master Plan requiring a number of updates to the table listing the amenities for Regional Park 8 on pages 6 and 7. The changes with additional explanation as necessary are as follows:

Amenity Number Updates

Staff found more specific details in the Master Plan on a number of different amenities envisioned. These numbers and corresponding proposed numbers are added for: Child Play Structure, Creative Child Play, Drinking Fountains, General Lawn Play, Overlooks, Benches, Tables, Restroom, and Storm/Rain Elements.

Explanation of General Lawn Play Area and Consistency with PDP

For Final Development Plans parks are measured against Preliminary Development Plans (PDP's). In almost every case for Regional Park 8 the PDP's carry forward the adopted Master Plan. One exception discovered since the July hearing is the increase in preserved wetland at the southern portion of Regional Park 8. Adding this wetland area not in the Master Plan displaced area envisioned to be general lawn play. The provided general lawn play area plus the wetland area is 1.28 acres, the amount of General Lawn Play required in the Master Plan. The added explanation establishes no refinement regarding the General Lawn Play is required as part of the Final Development Plan because the displacement by wetland is consistent with the Preliminary Development Plan.

Explanation of Number of Outlooks/Shelters and Metro Property

In reviewing the Parks Capacity Analysis Drawings in Appendix F of the Master Plan it came to light some Regional Park 8 amenities were envisioned on Metro owned property not proposed to be developed as part of the current project. In particular, two overlooks with shelters are shown on Metro property. Language is added to the table to explain including the overlooks and shelters shown on Metro property on the properties included in the current Final Development Plan proposal is not required.

Deletion of Meeting Room Reference

While it wasn't clear in initial review of the Master Plan document, additional reading of ordinances and background information since the last meeting revealed that the RP 8 meeting room was actually removed from the Master Plan in the 2010 Master Plan Amendment when the school was moved to its current location citing the proximity to the school. The confusion was introduced when the 2013 Master Plan Amendment regarding Grande Pointe in southwest Villebois inadvertently used a version of Table 1 with a dot for a meeting room in Regional Park 8. However, the record for the adoption of the 2010 amendment as well as the 2010 version of Table 1 clearly indicate the meeting room is no longer required.

Pages 12-13

The Exhibit list is expanded to include new information from staff, the applicant, and other parties.

Pages 18-19

Finding A12 regarding refinements is modified to remove the discussion of meeting rooms and general lawn play pursuant to the changes discussed under "Explanation of General Lawn Play and Consistency with PDP" and "Deletion of Meeting Room" above. Added to this finding is language discussing in more detail the changes to the number of benches and tables.

Page 21

Finding A14 regarding quantitative significance for refinements is updated to reflect the changes described for Finding A12 above including removing reference to the meeting room and lawn play area and adding discussion of benches and tables.

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 11, 2017

6:30 PM

VI. Public Hearing:

B. Resolution No. 342. Hilton Garden Inn: Dave Kimmel, Planning Design Group – Representative for RR Hotels Portland LLC – Applicant/Owner.

The applicant is requesting approval of a Stage II Final Plan Revision, Building Height and Minimum Lot Size Waivers, Site Design Review, Type C Tree Plan and Class 3 Sign Permit for construction of a new four-story, 118 room hotel with associated parking and landscaping improvements. The subject property is located on Tax Lot 10201 of Section 24CB, T3S, R1W, Clackamas County, Oregon. Staff: Jennifer Scola.

Case Files: DB17-0013 Stage II Final Plan Revision
DB17-0014 Waivers (2) – Building Height
& Minimum Lot Size
DB17-0015 Site Design Review
DB17-0016 Type C Tree Plan
DB17-0017 Class III Sign Permit

**DEVELOPMENT REVIEW BOARD
RESOLUTION NO. 342**

A RESOLUTION ADOPTING FINDINGS AND CONDITIONS APPROVING A STAGE II FINAL PLAN REVISION, BUILDING HEIGHT AND MINIMUM LOT SIZE WAIVERS, SITE DESIGN REVIEW, TYPE C TREE PLAN AND CLASS 3 SIGN PERMIT FOR CONSTRUCTION OF A NEW FOUR-STORY, 118 ROOM HOTEL WITH ASSOCIATED PARKING AND LANDSCAPING IMPROVEMENTS. THE SUBJECT PROPERTY IS LOCATED ON TAX LOT 10201 OF SECTION 24CB, T3S, R1W, CLACKAMAS COUNTY, OREGON. DAVE KIMMEL, PLANNING DESIGN GROUP – REPRESENTATIVE FOR RR HOTELS PORTLAND LLC – APPLICANT/OWNER.

WHEREAS, an application, together with planning exhibits for the above-captioned development, has been submitted in accordance with the procedures set forth in Section 4.008 of the Wilsonville Code, and

WHEREAS, the Planning Staff has prepared staff report on the above-captioned subject dated August 31, 2017, and

WHEREAS, said planning exhibits and staff report were duly considered by the Development Review Board Panel A at a scheduled meeting conducted on September 11, 2017, at which time exhibits, together with findings and public testimony were entered into the public record, and

WHEREAS, the Development Review Board considered the subject and the recommendations contained in the staff report, and

WHEREAS, interested parties, if any, have had an opportunity to be heard on the subject.

NOW, THEREFORE, BE IT RESOLVED that the Development Review Board of the City of Wilsonville does hereby adopt the staff report dated August 31, 2017, attached hereto as Exhibit A1, with findings and recommendations contained therein, and authorizes the Planning Director to issue permits consistent with said recommendations for:

- DB17-0013 Stage II Final Plan Revision
- DB17-0014 Class III Waivers (2)
- DB17-0015 Site Design Review
- DB17-0016 Type C Tree Plan
- DB17-0017 Class III Sign Permit

ADOPTED by the Development Review Board of the City of Wilsonville at a regular meeting thereof this 11th day of September, 2017 and filed with the Planning Administrative Assistant on _____. This resolution is final on the 15th calendar day after the postmarked date of the written notice of decision per *WC Sec 4.022(.09)* unless appealed per *WC Sec 4.022(.02)* or called up for review by the council in accordance with *WC Sec 4.022(.03)*.

Ron Heberlein, Chair - Panel A
Wilsonville Development Review Board

Attest:

Shelley White, Planning Administrative Assistant



Exhibit A1
Planning Division Staff Report
Hilton Garden Inn

Development Review Board Panel 'A'
Quasi-Judicial Public Hearing

Hearing Date:	September 11, 2017
Date of Report:	August 31, 2017
Application Nos.:	DB17-0013 Stage II Final Plan DB17-0014 Class III Waivers (2) DB17-0015 Site Design Review DB17-0016 Type C Tree Plan DB17-0017 Class III Sign Permit

Request/Summary: The Development Review Board is being asked to review a Class 3 Stage II Final Plan, Site Design Review, Class 3 Sign Permit, Type C Tree Removal Plan, and two Waivers for a new hotel and associated improvements

Location: The southeast corner of Memorial Drive and Parkway Avenue. The property is specifically known as Tax Lot 10201, Section 24CB, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon

Owner/Applicant: RR Hotels Portland LLC

Applicant's

Representative: Dave Kimmel
PDG Planning Design Group

Comprehensive Plan Designation: Commercial

Zone Map Classification: PDC (Planned Development Commercial)

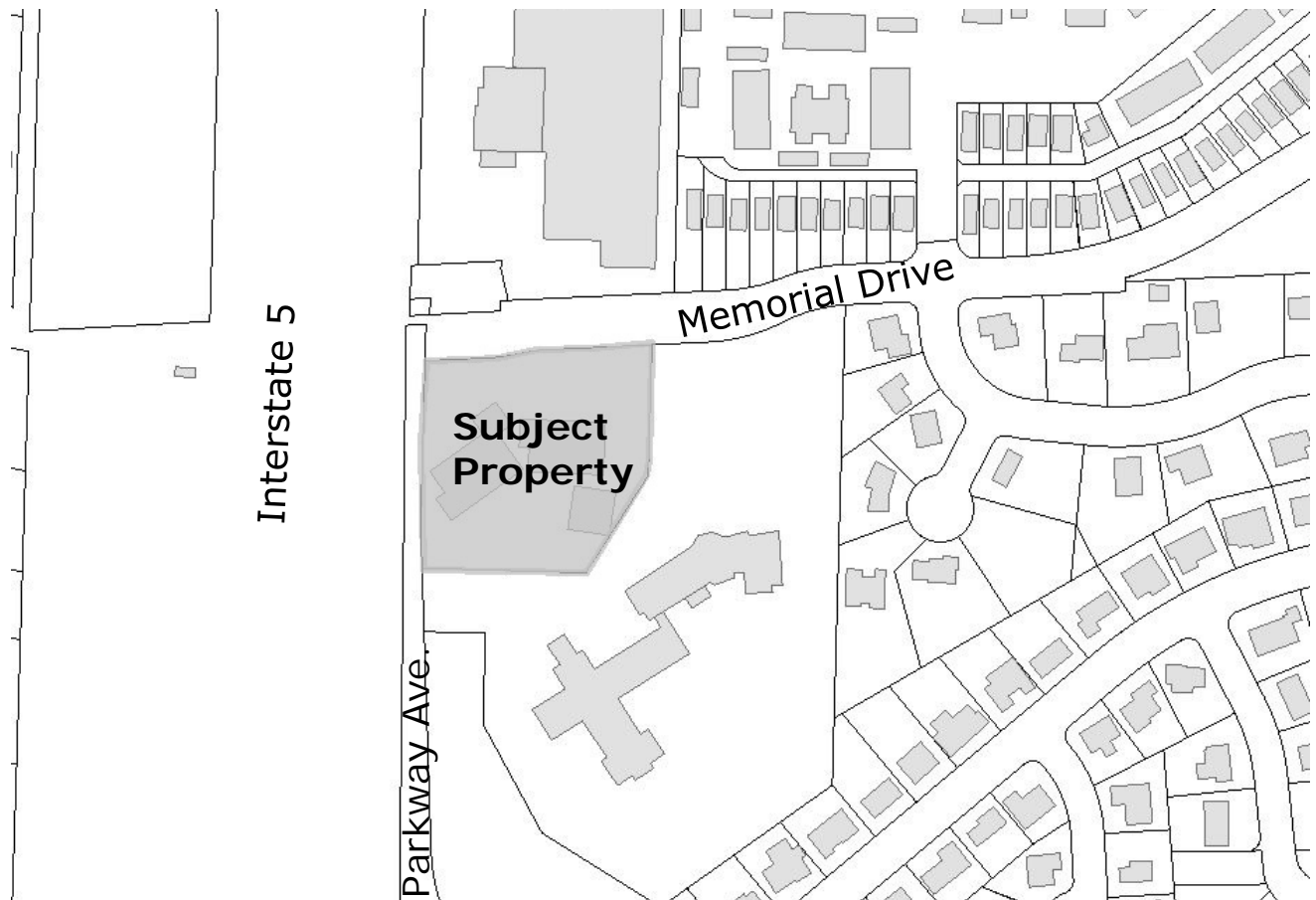
Staff Reviewers: Jennifer Scola, Associate Planner
Steve Adams PE, Development Engineering Manager
Kerry Rappold, Natural Resources Program Manager

Staff Recommendation: Approve with conditions the requested Stage II Final Plan, Class 3 Sign Permit, Waivers, Type C Tree Plan and Site Design Review request.

Applicable Review Criteria:

<u>Development Code:</u>	
Section 4.008	Application Procedures-In General
Section 4.009	Who May Initiate Application
Section 4.010	How to Apply
Section 4.011	How Applications are Processed
Section 4.014	Burden of Proof
Section 4.031	Authority of the Development Review Board
Subsection 4.035 (.04)	Site Development Permit Application
Subsection 4.035 (.05)	Complete Submittal Requirement
Section 4.110	Zones
Section 4.116	Standards Applying to Commercial Development in All Zones
Section 4.118	Standards Applying to Planned Development Zones
Section 4.131	Planned Development Commercial Zone (PDC)
Sections 4.133.00 through 4.133.05	Wilsonville Road Interchange Area Management Plan (IAMP) Overlay Zone
Section 4.140	Planned Development Regulations
Section 4.154	On-site Pedestrian Access and Circulation
Section 4.155	Parking, Loading, and Bicycle Parking
Sections 4.156.01 through 4.156.11	Sign Regulations
Section 4.167	Access, Ingress, and Egress
Section 4.171	Protection of Natural Features and Other Resources
Section 4.175	Public Safety and Crime Prevention
Section 4.176	Landscaping, Screening, and Buffering
Section 4.179	Mixed Solid Waste and Recyclables Storage
Sections 4.199.20 through 4.199.60	Outdoor Lighting
Sections 4.300 through 4.320	Underground Utilities
Sections 4.400 through 4.440 as applicable	Site Design Review
Sections 4.600-4.640.20	Tree Preservation and Protection
<u>Other Planning Documents:</u>	
Wilsonville Comprehensive Plan	

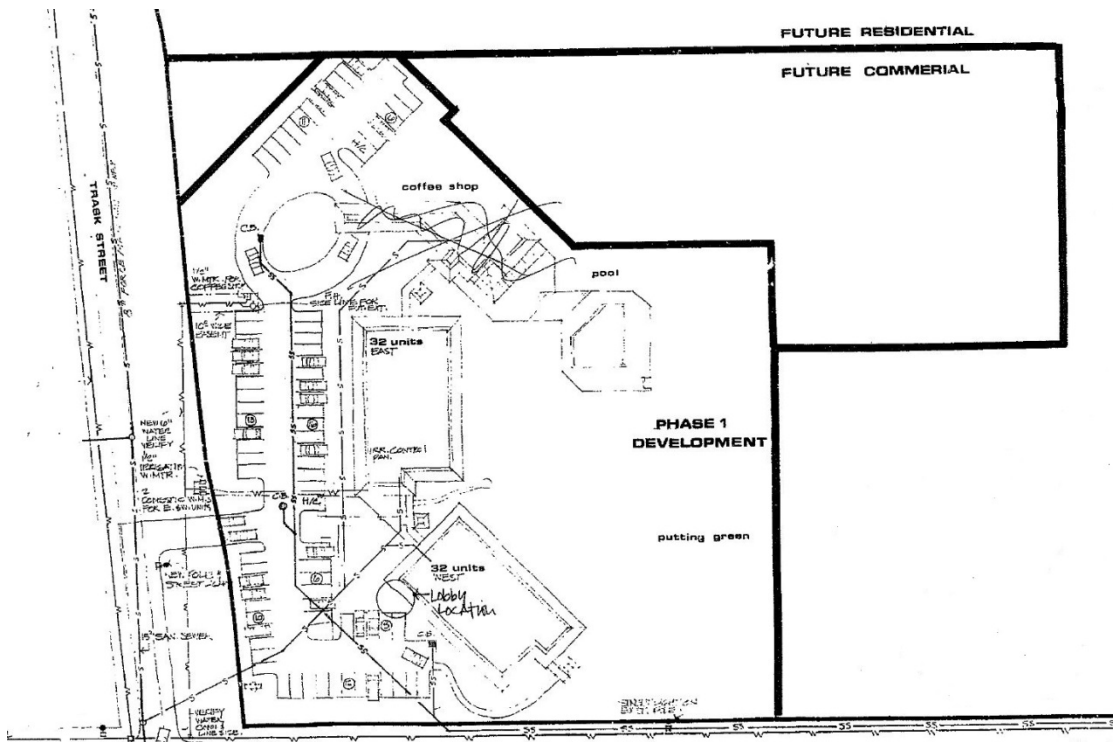
Vicinity Map



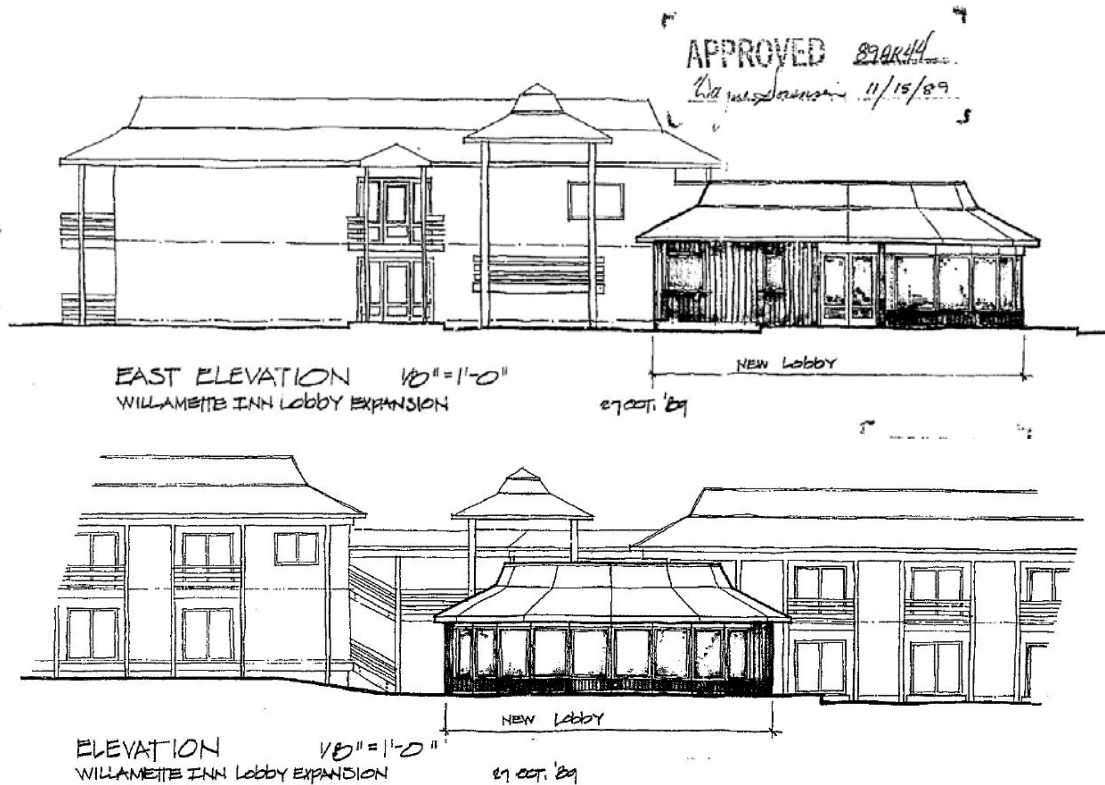
Background:

In March of 1985 the City approved a Stage I Master Plan, Comprehensive Plan Amendment, and Zone Change for a resort/apartment complex for the properties that now consist of the Quality Inn and adjacent Marquis Assisted Living Facility (85PC37). The initial Stage I Master Plan proposed a complex consisting of 160 motel units (five buildings), a coffee shop, convention hall, and 60 apartment/condo units (six buildings).

Phase I of the resort-type complex was developed first in 1986 (86DR09 – Stage II Final Plan), and entailed the commercially zoned area of the property along the northwestern portion of the site; this portion developed into a motel consisting of 64 units throughout two buildings, the management office, and a small conference room. While the initial motel has undergone several branding changes (Best Western, Willamette Inn, Quality Inn), the design of the site has remained largely consistent throughout its lifetime, with only minor changes such as the addition of a front lobby, sign modifications, and landscape revisions.



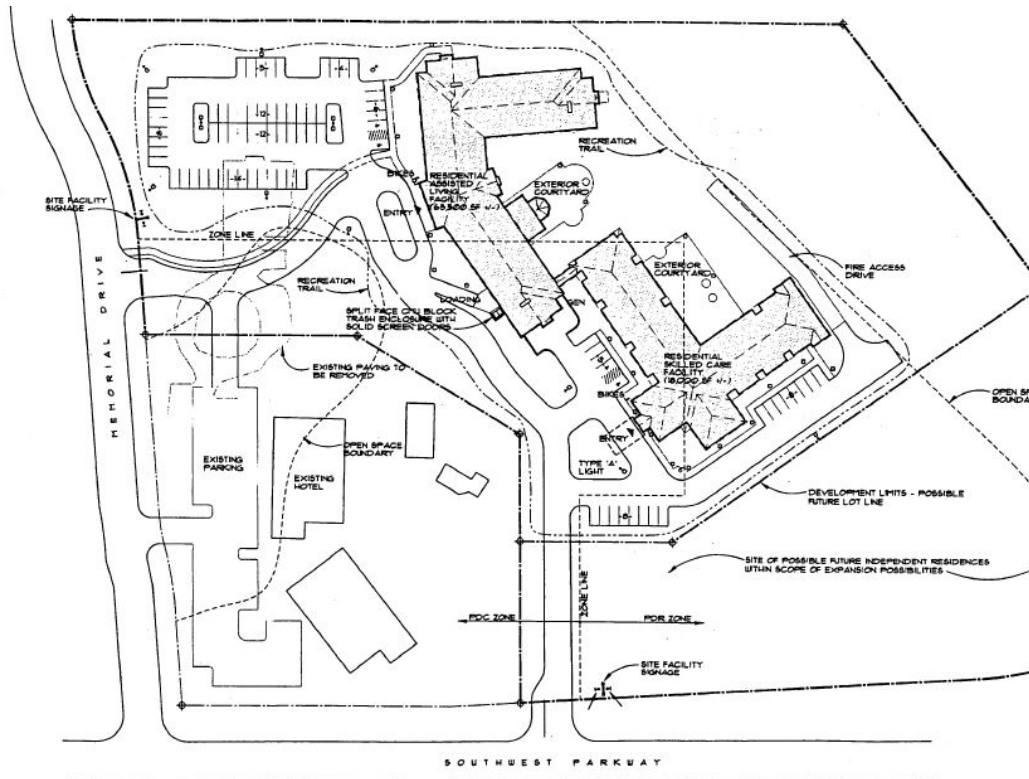
Site Plan 1985



Elevations from 1989 Lobby Expansion

In 1999 the City approved modifications to the initial 1985/1986 Planning Commission approvals for the resort-type complex Master Plan, ultimately deleting the additional 96 motel units that were not included in the Phase I motel development, the convention hall, and the 60 condo/apartment units.

Subsequently, the southern and northeastern segments of the property (Phase II and III) were developed into an 80-unit residential assisted living facility and associated parking.



Assisted Living Site Plan 1999

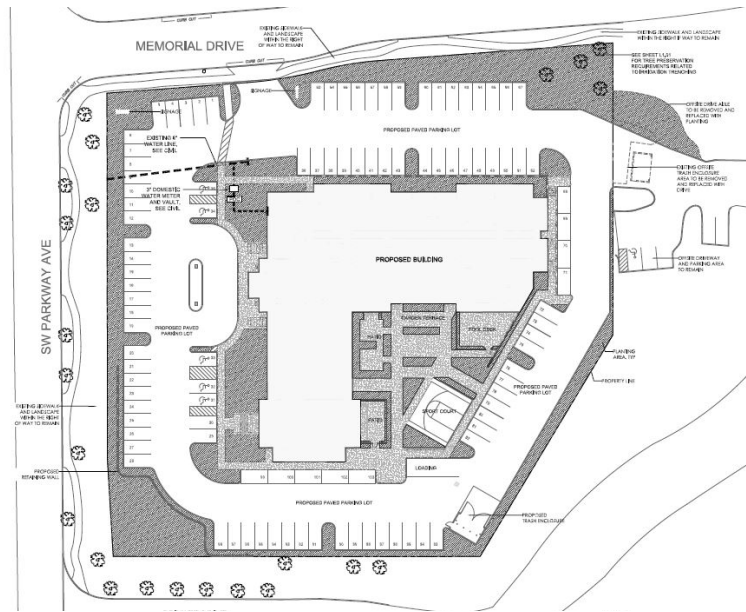
The applicant now proposes to demolish the Phase I motel and replace it with a new, larger hotel.

Summary:

Stage II Final Plan (DB17-0013)

Of the 2.37 acre site, approximately 21,134 square feet is covered by the proposed four-story hotel, and 22,286 square feet (21.6% of the site) is a combination of new and retained landscaping. The remainder of the site is composed of parking, circulation, and pedestrian areas. Traffic enters the site from the north, off of Memorial Drive, and a small secondary internal access driveway along the eastern property line provides entry to a shared parking area on the Marquis Assisted Living site. The building will have 118 guest rooms, a breakfast and

bar area for guests, an indoor pool, and a conference center. Traffic generation and the amount of proposed vehicle parking meet the applicable standards. Existing utilities are sufficient to serve the site.



Class III Waivers (2) (DB17-0014)

Rooms to Lot Area Ratio

The applicant requests to waive the minimum required lot size of 1,000 SF for each unit due to changes in the hospitality industry’s economic climate. Due to the site’s current area of 103,416 SF (2.37 acres), a hotel operation would be limited to 103 guestrooms; the applicant has cited 118 guest rooms to be the minimum necessary in order to make the redevelopment of the site along with the corresponding food service, meeting spaces, and other amenities in the hotel economically viable.

Building Height

Additionally, the applicant requests a waiver to the 35’ maximum building height in the PDC Zone, such as to allow a maximum building height of 58’ feet. The main mass of the building is proposed to be 51’ (4 stories), with the height reaching 58’ at the penthouse stair. According to the applicant, accommodating structural mechanical systems for a hotel building requires at least 10-12 feet floor-to-floor, and that four-star hotel brands typically require a minimum of four-stories from an economic and quality perception perspective. Moreover, with a total of 118 rooms and supporting services, such as food and meeting spaces, a minimum building size and number of stories is required to completely house the operation.

Site Design Review (DB17-0015)

Architecturally, the proposed building balances design elements of the Hilton brand's corporate identity with prevalent design features throughout modern hotels of the Pacific Northwest. The applicant has designed the project with consideration of the context of the site; recent developments in Wilsonville include a variety of transitional styles with varied massings, materials, and colors. Key features include a variety of materials such as brick and fiber cement, as well as a color palate that provides coordination and variation. The Applicant is proposing to retain as many large tree specimens on site as feasible, while enhancing the site's landscaping elsewhere.



Northwest Corner



Southeast Corner

Type C Tree Removal Plan (DB17-0016)

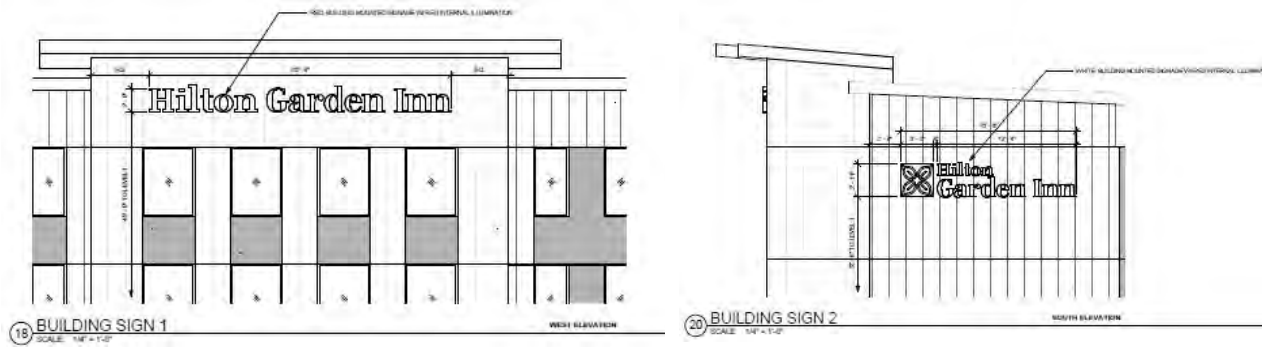
100 trees were inventoried on site; the canopy was largely made up of mature Douglas firs, with young pin oaks along Parkway Ave. Other, less abundant species on site include ornamental cherries, styrax, crabapples, western red cedar, flowering plums and pears, spruce, black pine, and several maple species. 23 trees are proposed for retention, including a mature stand of Douglas fir in the northeastern corner of the site, along Memorial Drive. 72 trees are proposed for removal; due to their locations it is not practicable to retain the trees without significantly

reducing the size of the proposed building and site layout. The tree plan on page L1.01 of Exhibit B3 shows five off-site trees proposed for removal, although as these are located on a separate property and the legal property owner has not authorized the removal of the aforementioned five trees, they are not being reviewed as part of this application.

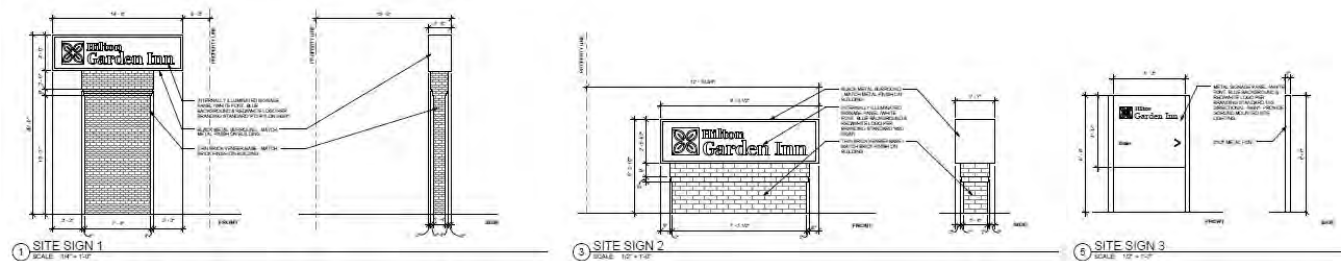
The 84 trees proposed as part of the site landscaping exceed the required mitigation.

Class III Sign Permit (DB17-0017)

The applicant proposes both building signs and freestanding signs. Of the two proposed wall signs, one is proposed for the west wall facing I-5 (51.5 SF), and the second sign is proposed for the south wall facing the Marquis property (47 SF); the southern wall sign will also have visibility from I-5. Both building signs are wall flat channel letter signs and illuminated logos typical of commercial buildings.



One freestanding sign is proposed along the site's Memorial Drive frontage (22.75 SF in area / 5' - 2 1/2" in height), and the second freestanding sign is proposed along Parkway, facing I-5 (58 SF in area / 20' in height). The two freestanding signs proposed have brick bases, with internally illuminated cabinet signs; the brick veneer on the monument signs will match that of the brick on the building. Additionally, one directional sign is proposed for the Memorial Drive entrance to the site to better direct the flow of traffic. In total, the applicant is proposing a combined 195.25 SF in sign area; all proposed signage meets the requirements of the Sign Code in regards to area.



Traffic:

Streets and intersections within Wilsonville are designed for specific traffic volumes, and are required to meet the City's Level of Service (LOS) capacity standards in order to ensure volumes from development do not exceed maximum capacity. In calculating the projected impacts to the surrounding areas, DKS Engineering considers combinations of three types of traffic and the potential impact on LOS for nearby intersections of concern:

- existing traffic volumes
- existing + potential future traffic volumes from nearby developments that have approval or are under construction
- existing + potential nearby development impacts + the proposed project's future traffic volumes.

For the subject project, DKS analyzed impacts to the Wilsonville Road/Town Center Loop West, SW Parkway Ave./Memorial Dr., and Memorial Dr./Project Access intersections, all of which are required to maintain a LOS D per City standards. The DKS Traffic Impact Analysis (Exhibit B2) confirms the streets and nearby intersections will continue to meet or exceed the City's capacity standards with the proposed development.

Pursuant to the DKS Traffic Study, the City anticipates the following PM peak hour traffic impacts:

Estimated New PM Peak Hour Trips	30
Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area	24

As found in Table 9 on Page 16 of the DKS Analysis, the City Standard of Level of Service (LOS) D or above will continue to be met.

Discussion Points:

Grading and Tree Preservation

The property is currently developed with a two-building single tenant hotel. The topography is gently sloping to the west, and some minor grading will be performed to level the site in order to construct a single building, as opposed to maintaining the two-structure layout and present grade. With the site's present grade the west motel building is approximately five (5) feet lower than the eastern building, which renders an expansion of the current layout economically infeasible, especially as the current footings are not capable of handling additional floor area without a significant amount of retrofitting and seismic safety modifications. While grading is necessary for redevelopment of the site, the area proposed for grading has been minimized to the smallest amount necessary, with the majority of grading taking place in the general area where the current Quality Inn sits, and the least amount of disturbance taking place in the northeastern corner, such as to retain several mature trees.

The site has a significant amount of tree cover, with the densest wooded area being in the aforementioned northeast corner of the property. In total, 4 mature trees in the northeast corner will be preserved, totaling a combined d.b.h. of 123", and 72 trees are proposed for removal. The applicant is requesting 17 tree credits for 4 mature trees being preserved, thus requiring a total of 55 trees for mitigation. 57 trees are proposed for mitigation, and to a large extent, native vegetation is being utilized for replacement/landscape improvements.

Parking

Per Table 5 in Section 4.155, a minimum of one parking space per 1,000 SF of commercial hotel area is required. Based on the building area of 78,798 SF a minimum of 79 parking spaces are required by Code; the applicant is proposing a total of 143, 40 of which are located on the adjacent assisted living facility's property as part of a shared parking agreement. No off-site parking spaces are proposed as part of this application, and the parking provided includes 5 ADA spaces.

Interior Bike Parking

The applicant has indicated 12 of the required 24 required bicycle parking spaces will be long-term spaces provided on the interior of the building, within 20' of a customer entry, directly across from the hotel's meeting rooms. However, specific design details have not been provided. A condition of approval requires the spacing, maneuvering area, and anchoring requirements be met as well as the requirements to be in a secure or monitored location within the building.

Conclusion and Conditions of Approval:

Staff has reviewed the Applicant's analysis of compliance with the applicable criteria. The Staff report adopts the applicant's responses as Findings of Fact except as noted in the Findings. Based on the Findings of Fact and information included in this Staff Report, and information received from a duly advertised public hearing, Staff recommends that the Development Review Board approve the proposed applications (DB17-0013-DB17-0017), with the following conditions:

Planning Division Conditions:

Request A: DB17-0013 Stage II Final Plan Revision

<p>PDA 1. The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Planning Director through the Class I Administrative Review Process if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same manner as the</p>

	original application and shall be subject to the same procedural requirements. See Finding A16.
PDA 2.	All parking spaces along the boundaries of the parking lot shall have a bumper guard or curb at least six (6) inches in height.
PDA 3.	All travel lanes shall be constructed to be capable of carrying a twenty-three (23) ton load. See Finding A76.
PDA 4.	All bicycle parking shall meet the spacing, maneuvering area, and anchoring requirements set forth by Subsection 4.155(.04)B.
PDA 5.	The owner/applicant shall designate at least eight (8) parking spaces as carpool/vanpool parking only, located closer to the main entrance than all other parking spaces, with the exception of ADA parking spaces.

Request B: DB17-0014 Building Height and Minimum Lot Area Waivers

No conditions for this request

Request C: DB17-0015 Site Design Review

PDC 1.	Construction, site development, and landscaping shall be carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. Minor revisions may be approved by the Planning Director through administrative review pursuant to Section 4.030. See Finding C3.
PDC 2.	All landscaping required and approved by the Board shall be installed prior to use of the proposed building, unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City will be returned to the applicant. See Finding C12.
PDC 3.	The approved landscape plan is binding upon the applicant/owner. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, pursuant to the applicable sections of Wilsonville's Development Code. See Finding C13.
PDC 4.	All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered as allowed by Wilsonville's Development

	Code. See Findings C14 and C15.
PDC 5.	<p>The following requirements for planting of shrubs and ground cover shall be met:</p> <ul style="list-style-type: none"> • Non-horticultural plastic sheeting or other impermeable surface shall not be placed under landscaping mulch. • Native topsoil shall be preserved and reused to the extent feasible. • Surface mulch or bark dust shall be fully raked into soil of appropriate depth, sufficient to control erosion, and shall be confined to areas around plantings. • All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and 10" to 12" spread. • Shrubs shall reach their designed size for screening within three (3) years of planting. • Ground cover shall be equal to or better than the following depending on the type of plant materials used: gallon containers spaced at 4 feet on center minimum, 4" pot spaced 2 feet on center minimum, 2-1/4" pots spaced at 18 inch on center minimum. • No bare root planting shall be permitted. • Ground cover shall be sufficient to cover at least 80% of the bare soil in required landscape areas within three (3) years of planting. • Appropriate plant materials shall be installed beneath the canopies of trees and large shrubs to avoid the appearance of bare ground in those locations. • Compost-amended topsoil shall be integrated in all areas to be landscaped, including lawns. See Finding C30.
PDC 6.	All trees shall be balled and burlapped and conform in size and grade to "American Standards for Nursery Stock" current edition. See Finding C24.
PDC 7.	Plant materials shall be installed to current industry standards and be properly staked to ensure survival. Plants that die shall be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City. See Finding C30.
PDC 8.	Any preserved tree that cannot be maintained will be replaced by the property owner within five (5) years of occupancy.

Request D: DB14-0044 Type C Tree Plan

PDD 1.	This approval for removal applies only to the seventy-two (72) trees identified in the Applicant's submitted materials. All other trees on the property shall be maintained unless removal is approved through separate application.
PDD 2.	The Applicant shall submit an application for a Type 'C' Tree Removal Permit on the Planning Division's Development Permit Application form, together with the applicable fee. In addition to the application form and fee, the Applicant shall provide the City's Planning Division an accounting of trees to be removed within the project site, corresponding to the approval of the Development Review Board. The applicant shall not remove any trees from the project site until the tree removal permit, including the final tree removal plan, have been approved by the Planning

	Division staff.
PDD 3.	The Applicant/Owner shall install the required fifty-seven (57) mitigation trees, as shown in the Applicant's sheet L2.01, per Section 4.620 WC.
PDD 4.	Replacement trees shall be state Department of Agriculture Nursery Grade No. 1 or better.
PDD 5.	The permit grantee or the grantee's successors-in-interest shall cause the replacement trees to be staked, fertilized and mulched, and shall guarantee the trees for two (2) years after the planting date. A "guaranteed" tree that dies or becomes diseased during the two (2) years after planting shall be replaced.
PDD 6.	Prior to site grading or other site work that could damage trees, the Applicant/Owner shall install six-foot-tall chain-link fencing around the drip line of preserved trees. The fencing shall comply with Wilsonville Public Works Standards Detail Drawing RD-1230. See Finding D14.

Request E: DB17-0017 Class III Sign Permit

PDE 1.	The approved signs shall be installed in a manner substantially similar to the plans approved by the DRB and stamped approved by the Planning Division.
PDE 2.	Prior to sign installation the Applicant/Owner shall coordinate with the City's Engineering Division to ensure the proposed freestanding signs meet the City's placement standards.
PDE 3.	The Applicant/Owner of the property shall obtain all necessary building and electrical permits for the approved signs, prior to their installation, and shall ensure that the signs are maintained in a commonly-accepted, professional manner.
PDE 4.	The proposed freestanding signs shall include the address number of the proposed building unless otherwise approved in writing by Tualatin Valley Fire and Rescue (TVF&R).
PDE 5.	The proposed directional sign shall not exceed six (6) square feet in area.

The following Conditions of Approval are provided by the Engineering, Natural Resources, or Building Divisions of the City's Community Development Department or Tualatin Valley Fire and Rescue, all of which have authority over development approval. A number of these Conditions of Approval are not related to land use regulations under the authority of the Development Review Board or Planning Director. Only those Conditions of Approval related to criteria in Chapter 4 of Wilsonville Code and the Comprehensive Plan, including but not limited to those related to traffic level of service, site vision clearance, recording of plats, and concurrency, are subject to the Land Use review and appeal process defined in Wilsonville Code and Oregon Revised Statutes and Administrative Rules. Other Conditions of Approval are based on City Code chapters other than Chapter 4, state law, federal law, or other agency rules and regulations. Questions or requests about the applicability, appeal, exemption or non-compliance related to these other Conditions of Approval should be directed to the City Department, Division, or non-City agency with authority over the relevant portion of the development approval.

Engineering Division Conditions:

PF 1.	Public Works Plans and Public Improvements shall conform to the “Public Works Plan Submittal Requirements and Other Engineering Requirements” in Exhibit C1.
PF 2.	<p>Existing public sanitary sewer mains are located within easements on the property which run both south between the two current buildings and east to the adjacent Marquis Wilsonville Assisted Living property.</p> <p>Plans dated 6/23/2017 and submitted with the development review application indicate both of these lines as being planned for abandonment. For the sewer line running south this only services the hotel property and the line shall be properly abandoned or removed per Public Works Standards and the easement terminated by the City.</p> <p>For the sewer line running to the east this is the sewer main which services the Marquis Wilsonville Assisted Living property and cannot be abandoned. Applicant shall reroute the sanitary sewer main through their property and connect to the existing sewer line east of the proposed new building. Applicant shall provide the City with an easement over this new line per Exhibit C1. Applicant shall properly abandon or remove the unused section of old sewer line per Public Works Standards and this section of easement terminated by the City.</p> <p>All legal descriptions shall be prepared by the Applicant.</p>
PF 3.	Plans dated 6/23/2017 and submitted with the development review application show an extension of the water main that does not meet Public Works Standards. Design plans shall need to be revised in conformance to Public Works Standards.
PF 4.	Applicant shall be in compliance with City stormwater standards in Exhibit C1.
PF 5.	<p>The adjacent streets of Memorial Drive and Parkway Avenue are fully developed. No additional right-of-way or additional improvements are needed.</p> <p>In the City’s Transportation System Plan Memorial Drive is classified as a collector level street. The existing PUE adjacent to Memorial Drive is six feet in width. Applicant shall provide an additional 2-foot width to the PUE to match current standards for having an 8-foot PUE on collector level roadways.</p>

Natural Resources Division Conditions:

NR 1.	Natural Resource Division Requirements and Advisories listed in Exhibit C2 apply to the proposed development.
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Building Division Conditions:

BD 1.	Accessible parking cannot be fully reviewed at this time. Accessible parking will be fully reviewed as part of the plan review of the building permit. The additional information available at plan review may require changes to the number and location of accessible parking spaces shown on these preliminary
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plans. It should be noted that the plans reference 40 additional off-site parking spaces that are available for the use of this site. Those parking spaces, or at least a portion of those spaces, should be considered in determining the total number of required accessible parking spaces.

Master Exhibit List:

The following exhibits are hereby entered into the public record by the Development Review Board as confirmation of its consideration of the application as submitted. This is the exhibit list that includes exhibits for Planning Case Files DB17-0013-DB17-0017.

Planning Staff Materials

- A1. Staff report and findings (this document)
- A2. Staff's Presentation Slides for Public Hearing (to be presented at Public Hearing)

Materials from Applicant

- B1. Signed Development Application
- B2. Applicant's Findings and Submitted Reports (*Under separate cover*)
 - Project Narrative
 - Architectural Narrative
 - Sign Matrix
 - Email with Response Findings on Lighting
 - Lighting Cut Sheets
 - Tree Maintenance and Protection Plan
 - Stormwater Report
 - Geotechnical Report
 - Transportation Impact Analysis
 - Letter from Republic Services
 - Shared Parking Agreement
 - Bike Parking Plan
- B3. Applicant's Plan Set (*Under separate cover*)
 - G1.01 Cover Sheet
 - C1.00 Overall Grading Plan
 - C2.00 Overall Layout and Paving Plan
 - C3.00 Overall Utility Plan
 - L1.01 Tree Plan
 - L2.01 Landscape Plan
 - L3.01 Conceptual Irrigation Plan
 - A1.01 Site Plan
 - A4.01 Exterior Elevations (West and North)
 - A4.02 Exterior Elevations (South and East)

A4.03 Building Renderings
A8.01 Comprehensive Signage Plan

B4. Materials Board (*available at public hearing*)

Development Review Team Correspondence

- C1. Engineering Conditions from Steve Adam PE, Development Engineering Manager
- C2. Natural Resource Conditions from Kerry Rappold, Natural Resources Program Manager
- C3. Tualatin Valley Fire and Rescue Comments and Conditions
- C4. Oregon Department of Aviation Comments

Procedural Statements and Background Information:

1. The statutory 120-day time limit applies to this application. The application was received on April 28, 2017; the application materials were deemed incomplete on this same day. On May 9, 2017 additional materials were submitted, and on June 8, 2017 staff conducted a completeness review within the statutorily allowed 30-day review period and found the application to remain incomplete. Additional materials were received June 28, 2017 and July 18, 2017. On July 21, 2017 the application was deemed complete. The City must render a final decision for the request, including any appeals, by November 18, 2017.
2. Surrounding land uses are as follows:

Compass Direction	Zone:	Existing Use:
North:	PDC	Retail Commercial (Honda)
East:	PDC	Assisted Living Facility (Marquis)
South:	PDC	Assisted Living Facility (Marquis)
West:	---	ODOT Right-of-Way (Interstate 5)

3. Previous Planning Approvals:
 - 85PC37: Comprehensive Plan Amendment and Zone Change
 - 86DR09: Zone Change/Ord #279 and Trask Street Vacation/State Agreement
 - 86PC13: Stage II Final Plan
 - 86AR10: Front Yard Setbacks Variance
 - 86AR33: Temporary Use Permit – Signage (Best Western)
 - 89AR49: Change to Approved Plans (Willamette Inn)
 - 89SR19: Entrance Sign (Willamette Inn)
 - 89SR20: Wall Sign (Willamette Inn)
 - 97AR04: Minor Land Partition
 - 98AR29: Landscape Revisions/Tree Removal

4. The applicant has complied with Sections 4.013-4.031 of the Wilsonville Code, said sections pertaining to review procedures and submittal requirements. The required public notices have been sent and all proper notification procedures have been satisfied.

Findings:

NOTE: Pursuant to Section 4.014 the burden of proving that the necessary findings of fact can be made for approval of any land use or development application rests with the applicant in the case.

General Information

Application Procedures-In General Section 4.008

Criteria: This section lists general application procedures applicable to a number of types of land use applications and also lists unique features of Wilsonville's development review process.

Response: The application is being processed in accordance with the applicable general procedures of this Section.

Initiating Application Section 4.009

Criterion: "Except for a Specific Area Plan (SAP), applications involving specific sites may be filed only by the owner of the subject property, by a unit of government that is in the process of acquiring the property, or by an agent who has been authorized by the owner, in writing, to apply."

Response: The application has been submitted on behalf of the property owner, RR Hotels LLC. The application form is signed by Ray Batra, a member of the LLC.

Pre-Application Conference Subsection 4.010 (.02)

Criteria: This section lists the pre-application process

Response: A Pre-application conference was held on July 14, 2016 (PA16-0009) in accordance with this subsection.

Lien Payment before Approval Subsection 4.011 (.02) B.

Criterion: "City Council Resolution No. 796 precludes the approval of any development application without the prior payment of all applicable City liens for the subject property. Applicants shall be encouraged to contact the City Finance Department to verify that there are no outstanding liens. If the Planning Director is advised of outstanding liens while an application is under consideration, the Director shall advise the applicant that payments must be made current or the existence of liens will necessitate denial of the application."

Response: No applicable liens exist for the subject property. The application can thus move forward.

General Submission Requirements
Subsection 4.035 (.04) A.

Criteria: “An application for a Site Development Permit shall consist of the materials specified as follows, plus any other materials required by this Code.” Listed 1. through 6. j.

Response: The applicant has provided all of the applicable general submission requirements contained in this subsection.

Zoning-Generally
Section 4.110

Criteria: “The use of any building or premises or the construction of any development shall be in conformity with the regulations set forth in this Code for each Zoning District in which it is located, except as provided in Sections 4.189 through 4.192.” “The General Regulations listed in Sections 4.150 through 4.199 shall apply to all zones unless the text indicates otherwise.”

Response: This proposed development is in conformity with the applicable zoning district and general development regulations listed in Sections 4.150 through 4.199 have been applied in accordance with this Section.

Request A: DB17-0013 Stage II Final Plan

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Planned Development Regulations

Planned Development Purpose
Subsection 4.140 (.01)

A1. **Criterion:** The proposed revised Stage II Master Plan shall be consistent with the Planned Development Regulations purpose statement which states, “The purposes of these regulations are to encourage the development of tracts of land sufficiently large to allow for comprehensive master planning, and to provide flexibility in the application of certain regulations in a manner consistent with the intent of the Comprehensive Plan and general provisions of the zoning regulations and to encourage a harmonious variety of uses through mixed use design within specific developments thereby promoting the economy of shared public services and facilities and a variety of complimentary activities consistent with the land use designation on the Comprehensive Plan and the creation of an attractive, healthful, efficient and stable environment for living, shopping or working.”

Response: The proposed development is surrounded by developed land and is sufficiently large enough to allow for master planning. Design features such as a shared use access on the east side of development and landscape screening enhances the relationship with adjoining uses and maintains a harmonious connection with adjacent uses, specifically the abutting assisted living facility. Flexibility is being requested by virtue of two (2) waivers: one allowing a greater number of guestrooms than permitted by Code, thus making the project more economically feasible, and one allowing a greater height than permitted by

Code, thus to accommodate the increase in guestrooms and associated amenities. Roads and other public services are provided to the site as part of the previous master planned development.

Planned Development Lot Qualifications

Subsection 4.140 (.02)

A2. Criterion: “Planned Development may be established on lots which are suitable for and of a size to be planned and developed in a manner consistent with the purposes and objectives of Section 4.140.”

Response: The property is of sufficient size to be developed in a manner consistent the purposes and objectives of Section 4.140.

A3. Criteria: “Any site designated for development in the Comprehensive Plan may be developed as a Planned Development, provided that it is zoned “PD.” All sites which are greater than two (2) acres in size, and designated in the Comprehensive Plan for commercial, residential, or industrial use shall be developed as Planned Developments, unless approved for other uses permitted by the Development Code.”

Response: The development site is greater than 2 acres, is designated for commercial development in the Comprehensive Plan, and is zoned Planned Development Commercial. The property will be developed as a planned development in accordance with this subsection.

Ownership Requirements

Subsection 4.140 (.03)

A4. Criterion: “The tract or tracts of land included in a proposed Planned Development must be in one (1) ownership or control or the subject of a joint application by the owners of all the property included.”

Response: The land included in the proposed Stage II Final Plan is under the single ownership of RR Hotels LLC and a member of the LLC, Ray Batra, has signed the application.

Professional Design Team

Subsection 4.140 (.04)

A5. Criteria: “The applicant for all proposed Planned Developments shall certify that the professional services of the appropriate professionals have been utilized in the planning process for development. One of the professional consultants chosen by the applicant shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan.”

Response: As can be found in the applicant’s submitted materials, appropriate professionals have been involved in the planning and permitting process. Dave Kimmel, with Planning Design Group (PDG) has been designated the coordinator for the planning portion of the project.

Planned Development Permit Process
Subsection 4.140 (.05)

A6. Criteria: “All parcels of land exceeding two (2) acres in size that are to be used for residential, commercial or industrial development, shall, prior to the issuance of any building permit:

1. Be zoned for planned development;
2. Obtain a planned development permit; and
3. Obtain Development Review Board, or, on appeal, City Council approval.”

Response: The subject property is greater than 2 acres, is designated for commercial development in the Comprehensive Plan, and is zoned Planned Development Commercial. The property will be developed as a planned development in accordance with this subsection.

Stage II Final Plan Submission Requirements and Process

Timing of Submission
Subsection 4.140 (.09) A.

A7. Review Criterion: “Unless an extension has been granted by the Development Review Board, within two (2) years after the approval or modified approval of a preliminary development plan (Stage I), the applicant shall file with the City Planning Department a final plan for the entire development or when submission in stages has been authorized pursuant to Section 4.035 for the first unit of the development”

Response: The applicant is not requesting a new or revised Stage I Master Plan. The initial Stage I Master Plan for the site approved a hotel for the property, centrally located on the property; the applicant is proposing to rebuild the hotel in the same general area as the existing hotel.

Determination by Development Review Board
Subsection 4.140 (.09) B.

A8. Review Criterion: “the Development Review Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application”.

Response: The Development Review Board is considering all applicable permit criteria set forth in the Planning and Land Development Code and staff is recommending the Development Review Board approve the application with conditions of approval.

Conformance with Stage I and Additional Submission Requirements
Subsection 4.140 (.09) C.

A9. Review Criteria: “The final plan shall conform in all major respects with the approved preliminary development plan, and shall include all information included in the preliminary plan plus the following:” listed 1. through 6.

Response: The Stage II plan substantially conforms to the preexisting Stage I Master plan, which approved a hotel centrally located on the subject site, surrounded by associated parking. The applicant has provided the required drawings and other documents showing all the additional information required by this subsection.

Stage II Final Plan Detail

Subsection 4.140 (.09) D.

A10. Review Criterion: “The final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development.”

Response: The applicant has provided sufficiently detailed information to indicate fully the ultimate operation and appearance of the development, including a detailed site plan, landscape plans, elevation drawings, and material information.

Submission of Legal Documents

Subsection 4.140 (.09) E.

A11. Review Criterion: “Copies of legal documents required by the Development Review Board for dedication or reservation of public facilities, or for the creation of a non-profit homeowner’s association, shall also be submitted.”

Response: No additional legal documentation is required for dedication or reservation of public facilities.

Expiration of Stage II Approval

Subsection 4.140 (.09) I. and Section 4.023

A12. Review Criterion: This subsection and section identify the period for which Stage II approvals are valid.

Response: The Stage II Approval, along other associated applications, will expire two (2) years after approval, unless an extension is approved in accordance with these subsections.

Planned Development Permit Requirements: Conformance with Comprehensive Plan and other Applicable Plans and Ordinances

Subsection 4.140 (.09) J. 1.

A13. Review Criteria: “The location, design, size and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council.”

Response: The subject property has previously been zoned Planned Development Commercial consistent with the Commercial designation in the Comprehensive Plan. To staff’s knowledge, the location, design, size, and uses are consistent with other applicable plans, maps, and ordinances, or will be by specific conditions of approval.

Planned Development Permit Requirements: Traffic Concurrency
Subsection 4.140 (.09) J. 2.

A14. Review Criteria: “That the location, design, size and uses are such that traffic generated by the development at the most probable used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D, as defined in the Highway Capacity Manual published by the National Highway Research Board, on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets. Immediately planned arterial and collector streets are those listed in the City’s adopted Capital Improvement Program, for which funding has been approved or committed, and that are scheduled for completion within two years of occupancy of the development or four year if they are an associated crossing, interchange, or approach street improvement to Interstate 5.” Additional qualifiers and criteria listed a. through e.

Response: As explained on page 3 of the Transportation Impact Study prepared by DKS Associates dated July 18, 2017 (component of Exhibit B2) the development is anticipated to generate 71 (36 in, 35 out) p.m. peak hour trips. As shown on Page 4 of the Transportation Impact Study, the studied intersections will continue to operate at Level of Service D or better.

Planned Development Permit Requirements: Facilities and Services Concurrency
Subsection 4.140 (.09) J. 3.

A15. Review Criteria: “That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services.”

Response: Facilities and services, including utilities, are available and sufficient to serve the proposed development.

Adherence to Approved Plan and Modification Thereof
Subsection 4.140 (.09) L.

A16. Review Criteria: “The applicant shall agree in writing to be bound, for her/himself and her/his successors in interest, by the conditions prescribed for approval of a development. The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Director of Planning if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same manner as the original application and shall be subject to the same procedural requirements.”

Response: Condition of Approval PDA 1 ensures adherence to approved plans except for minor revisions by the Planning Director.

Commercial Development in Any Zone

Wholly Enclosed Commercial Operations and Exceptions Subsection 4.116 (.05)

- A17. Review Criteria:** “All businesses, service or processing, shall be conducted wholly within a completely enclosed building; except for:” Listed A. through G.
Response: All business will be conducted wholly within a completely enclosed building. Only recreational amenities, as appropriate, are located outside.

Commercial Loading Facilities and Residential Districts Subsection 4.116 (.06)

- A18. Review Criteria:** “In any Commercial Development directly across the street from any Residential District, the loading facilities shall be at least twenty (20) feet from the street, shall be sited whenever practicable at the rear or side, and if facing a residential area, shall be properly screened. Screening shall be provided in a manner that is compatible with the adjacent residential development in terms of quality of materials and design. Such screening shall effectively minimize light glare and noise levels to those of adjacent residential areas.”
Response: All loading areas are more than 20 feet from a street or multi-use path. The loading areas are located to the rear (south) and side (west) of the building and are appropriately screened with vegetation.

Commercial Uses to Meet Industrial Performance Standards Subsection 4.116 (.07)

- A19. Review Criteria:** “Uses shall be limited to those which will meet the performance standards specified in Section 4.135(.05), with the exception of 4.135(.05)(M.)(3.).”
Response: Industrial performance standards are met. See Finding A40.

Commercial Development Generally Subsection 4.116 (.10)

- A20. Review Criteria:** This subsection lists general development standards for commercial development including setbacks, building height, lot size, lot coverage, and minimum frontage requirements.
Response: The subject property does not abut any more restrictive zones, thus no general setbacks are required. The maximum building height of 35 feet is exceeded, and a waiver has been requested. The main mass of the building is at 51’feet; however towers and varying parapets break up the façade, and provide visual interest. See Request B.

Hotels or Motels Subsection 4.116 (.11)

- A21. Review Criteria:** This subsection lists general development standards for hotels or motels, including minimum lot size, setbacks, and minimum frontage requirements.

Response: The applicant is requesting a waiver to the minimum lot size requirement of one thousand (1,000) SF for each unit. The subject site is 103,416 SF (2.37 acres), therefore this Subsection would allow a maximum of 103 guestrooms; the applicant is proposing 118 for economic feasibility. This proposed increase in guestrooms is subsequently prompting the second waiver, which would allow for a greater building height and thus accommodate the extra rooms while still maintaining Hilton brand standards for a first floor lobby height of 12', and allowing space for amenities such as a pool, conference rooms, guest lounge, and fitness center. See Request B. Additionally, the subject meets the minimum street frontage requirement of one hundred (100) feet, and the proposed building will exceed all minimum required setbacks.

Commercial Off-Street Parking Requirements Subsection 4.116 (.12)

A22. Review Criteria: "Off-Street Parking is to be as specified in Section 4.155."

Response: Off-street parking is being provided consistent with Section 4.155, see Findings A46 through A59.

Commercial Signs Subsection 4.116 (.13)

A23. Review Criteria: "Signs are subject to the standards of Sections 4.156.01 through 4.156.11."

Response: Signs are being reviewed in accordance with Sections 4.156.01 through 4.156.11. See Request E.

Standards Applying in All Planned Development Zones

Additional Height Guidelines Subsection 4.118 (.01)

A24. Review Criterion: "In cases that are subject to review by the Development Review Board, the Board may further regulate heights as follows:

- A. Restrict or regulate the height or building design consistent with adequate provision of fire protection and fire-fighting apparatus height limitations.
- B. To provide buffering of low density developments by requiring the placement of three or more story buildings away from the property lines abutting a low density zone.
- C. To regulate building height or design to protect scenic vistas of Mt. Hood or the Willamette River."

Response: Staff does not recommend the Development Review Board require a height less than the applicant proposes as the proposed height provides for fire protection access, does not abut a low density zone, and does not impact scenic views of Mt. Hood or the Willamette River.

Underground Utilities
Subsection 4.118 (.02)

A25. Review Criteria: “Underground Utilities shall be governed by Sections 4.300 to 4.320. All utilities above ground shall be located so as to minimize adverse impacts on the site and neighboring properties.”

Response: All existing utility services are underground and the project will reconnect to the existing facilities.

Waivers
Subsection 4.118 (.03)

A26. Review Criteria: “Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may” waive a number of standards as listed in A. through E.

Response: The applicant is requesting a waiver to building height and minimum lot area, which are two of the typical development standards that can be waived pursuant to this subsection. The applicant is requesting a waiver to the minimum lot size requirement of one thousand (1,000) SF for each unit. The subject site is 103,416 SF (2.37 acres), therefore allowing a maximum of 103 guestrooms; the applicant is proposing 118 for economic feasibility. This proposed increase in guestrooms is subsequently prompting the second waiver, which would allow for a greater building height and thus accommodate the extra rooms while still maintaining Hilton brand standards for a first floor lobby height of 12’, and allowing space for amenities such as a pool, conference rooms, guest lounge, and fitness center. See Request B.

Other Requirements or Restrictions
Subsection 4.118 (.03) E.

A27. Review Criteria: “Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may adopt other requirements or restrictions, inclusive of, but not limited to, the following:” Listed 1. through 12.

Response: No additional requirements or restrictions are recommended pursuant to this subsection.

Effect of Determination of Compliance and Conditions of Approval on Development Cost
Subsection 4.118 (.04)

A28. Review Criteria: “The Planning Director and Development Review Board shall, in making their determination of compliance in attaching conditions, consider the effects of this action on availability and cost. The provisions of this section shall not be used in such a manner that additional conditions, either singularly or cumulatively, have the effect of

unnecessarily increasing the cost of development. However, consideration of these factors shall not prevent the Board from imposing conditions of approval necessary to meet the minimum requirements of the Comprehensive Plan and Code.”

Response: It is staff’s professional opinion that the determination of compliance or attached conditions do not unnecessarily increase the cost of development, and no evidence has been submitted to the contrary.

Requirements to Set Aside Tracts for Certain Purposes

Subsection 4.118 (.05)

A29. Review Criteria: “The Planning Director, Development Review Board, or on appeal, the City Council, may as a condition of approval for any development for which an application is submitted, require that portions of the tract or tracts under consideration be set aside, improved, conveyed or dedicated for the following uses:” Recreational Facilities, Open Space Area, Easements.”

Response: No additional tracts are being required for the purposes given.

Habitat Friendly Development Practices

Subsection 4.118 (.09)

A30. Review Criteria: “To the extent practicable, development and construction activities of any lot shall consider the use of habitat-friendly development practices, which include:

A. Minimizing grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;

B. Minimizing adverse hydrological impacts on water resources, such as using the practices described in Part (a) of Table NR-2 in Section 4.139.03, unless their use is prohibited by an applicable and required state or federal permit, such as a permit required under the federal Clean Water Act, 33 U.S.C. §§1251 et seq., or the federal Safe Drinking Water Act, 42 U.S.C. §§300f et seq., and including conditions or plans required by such permit;

C. Minimizing impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2 in Section 4.139.03; and

D. Using the practices described in Part (c) of Table NR-2 in Section 4.139.03.”

Response: Where practicable with the proposed building size and necessary parking and circulation area native vegetation is being preserved on the northeast corner of the site and additional native plants are being planted to enhance the area. The area is not high value native soil used for farming; the site is composed of coarse-grained Missoula flood deposits, which typically consist of silts, sand, and gravel. The site, besides the mature Douglas firs preserved at the north end of the site, will be graded to transform the mildly sloping site into a flat area appropriate for development. With the site’s present grade the west motel building is approximately five (5) feet lower than the eastern building, which renders an expansion of the current layout economically infeasible, especially as the current footings are not capable of handling additional floor area without a significant amount of retrofitting and seismic safety modifications. The grade differential would also

create ADA compliance complications as each floor would require a ramp between different wings, and the elevators would not function continuously; patrons would be required to exit the elevator and transfer to a secondary elevator at a different elevation. While grading is necessary for redevelopment of the site, the area proposed for grading has been minimized to the smallest amount necessary, with the majority of grading taking place in the general area where the current motel sits, and the least amount of disturbance taking place in the northeastern corner, such as to retain several mature trees. All storm water will be managed according to the City's new low impact development storm water standards.

Planned Development Commercial Zone

Uses in the Planned Development Commercial Zone
Subsections 4.131 (.01) & (.02)

A31. Review Criteria: These subsections establish the typically permitted and prohibited uses in the PDC Zone.

Response: Uses, including planned multiple-dwelling facilities such as hotels/motels as may be approved by the Development Review Board, are allowed in the zone and consistent with the Stage I Master Plan.

Block and Access Standards in the PDC Zone
Subsection 4.131 (.03)

A32. Review Criteria: "The Development Review Board shall determine appropriate conditions of approval to assure that adequate connectivity results for pedestrians, bicyclists, and motor vehicle drivers. Consideration shall be given to the use of public transit as a means of meeting access needs.

Response: Adequate connectivity is provided consistent with the standards in Sections 4.154, 4.155, and 4.177. No additional conditions of approval are necessary.

Wilsonville Road Interchange Area Management Plan (IAMP) Overlay Zone

Where IAMP Regulations Apply
Section 4.133.02

A33. Review Criteria: "The provisions of this Section shall apply to land use applications subject to Section 4.004, Development Permit Required, for parcels wholly or partially within the IAMP Overlay Zone, as shown on Figure I-1. Any conflict between the standards of the IAMP Overlay Zone and those contained within other chapters of the Development Code shall be resolved in favor of the Overlay Zone."

Response: The parcel being developed is wholly within the IAMP Overlay Zone, as shown on Figure I-1 of Wilsonville's Development Code, the IAMP standards are thus being applied.

Permitted Land Uses with the IAMP Overlay Zone
Section 4.133.03

A34. Review Criterion: “Uses allowed in the underlying zoning districts are allowed subject to other applicable provisions in the Code and this Section.”

Details of Finding: Uses consistent with the underlying PDC zone are proposed.

Access Management
Section 4.133.04

In addition to the standards and requirements of Section 4.237 for land divisions and Street Improvement Standards in Section 4.177, parcels wholly or partially within the IAMP Overlay Zone are governed by the Access Management Plan in the Wilsonville Road Interchange Area Management Plan. The following applies to land use and development applications subject to Sections 4.133.02 Applicability.

Applicability of Access Management Requirements and Standards
Subsections 4.133.04 (.01) – (.03)

A35. Review Criterion: “The provisions of Section 4.133.04 apply to:

(.01) Development or redevelopment proposals for parcels two (2) acres or less that are subject to the requirements of Section 4.004 Development Permit.

(.02) Planned Development applications, pursuant to Section 4.140, as part of Preliminary Approval (Stage One).

(.03) Final Approval (Stage Two) Planned Development applications, pursuant to Section 4.140, to the extent that subsequent phases of development differ from the approved preliminary development plan, or where one or more of the following elements are not identified for subsequent phases:

- A. Land uses.
- B. Building location.
- C. Building size.
- D. Internal circulation.”

Response: A planned development, including a Stage II Final Approval, is proposed within the IAMP Overlay Zone, therefore the access management standards and requirements thus apply.

Access to Public Streets to be Reviewed for Consistency with Access Management Plan

Subsection 4.133.04 (.04) A.

A36. Review Criterion: “Access to public streets within the IAMP Overlay Zone shall be reviewed for consistency with the IAMP Access Management Plan.”

Response: The vehicle access to the property will continue to be from the site’s existing driveway off Memorial Drive and Parkway Avenue. The proposed street access does not impact any of the street access points identified in the access management plan.

Access to Public Streets to be Jointly Reviewed by City and ODOT
Subsection 4.133.04 (.04) A.

A37. Review Criterion: “Approval of access to City streets within the IAMP Overlay Zone shall be granted only after joint review by the City and the Oregon Department of Transportation (ODOT). Coordination of this review will occur pursuant to Section 4.133.05(.02).”

Response: The proposal has been reviewed by the City’s traffic consultant (see Transportation Impact Study in Exhibit B2), the City Engineering staff, and ODOT has been notified and given the opportunity to comment. Access is taken from an existing driveway along Memorial Drive and Parkway Avenue, a collector, and adjacent local streets and arterials are not impacted.

Cross Access Easements
Subsection 4.133.04 (.05)

A38. Review Criteria: “Prior to approving access for tax lots that are identified in the Access Management Plan (see Table 3 and Figure 5 in the Wilsonville Road Interchange Area Management Plan), the City shall require that:” Listed 1 through 3.

Response: No new cross access easements are involved in the proposed development, although there is an existing access easement between the subject site and the property directly adjacent to the east (Marquis Assisted Living Facility), which is used primarily for off-site parking (40 spaces).

Traffic Impact Analysis
Subsection 4.133.01 (.01)

A39. Review Criteria: This subsection lists the requirements for a Traffic Impact Analysis in the IAMP Overlay Zone.

Response: A Transportation Impact Analysis, Exhibit B2, has been prepared and reviewed consistent with this subsection.

Industrial Performance Standards
Subsection 4.135 (.05)

A40. Review Criteria: “The following performance standards apply to all industrial properties and sites within the PDI Zone, and are intended to minimize the potential adverse impacts of industrial activities on the general public and on other land uses or activities. They are not intended to prevent conflicts between different uses or activities that may occur on the same property.” Standards listed A. through N.

Response: The proposed project meets the performance standards of this subsection as follows:

- Pursuant to standard A (enclosure of uses and activities), all non-parking/loading activities and uses will be completely enclosed, with the exception of recreational amenities, as appropriate, which are to be located outside.

- Pursuant to standard B (vibrations), there is no indication that the proposed development will produce vibrations detectable off site without instruments.
- Pursuant to standard C (emissions), there is no indication the odorous gas or other odorous matter would be produced by the proposed use.
- Pursuant to standard D (open storage), no outdoor open storage is proposed.
- Pursuant to standard E (night operations and residential areas), the hotel will run 24/7, although there are no openings or loading berths located within one hundred (100) feet of any residential district.
- Pursuant to standard F (heat and glare), no exterior operations are proposed creating heat and glare.
- Pursuant to standard G (dangerous substances), there are no prohibited dangerous substances expected on the development site.
- Pursuant to standard H (liquid and solid wastes), staff has no evidence that the standards defined for liquid and solid waste in this subsection would be violated.
- Pursuant to standard I (noise), staff has no evidence that noise generated from the proposed operations would violate the City's Noise Ordinance and noises produced in violation of the Noise Ordinance would be subject to the enforcement procedures established in WC Chapter 6 for such violations.
- Pursuant to standard J (electrical disturbances), staff has no evidence that any prohibited electrical disturbances would be produced by the proposed project's operations.
- Pursuant to standard K (discharge of air pollutants), staff has no evidence that any prohibited discharge would be produced by the proposed project.
- Pursuant to standard L (open burning), no open burning is proposed on the development site.
- Pursuant to standard M (outdoor storage), no outdoor storage is proposed as described in this standard.
- Pursuant to standard N (unused area landscaping), no unused areas will be left on the subject property.

On-site Pedestrian Access and Circulation

Continuous Pathway System

Subsection 4.154 (.01) B. 1.

A41. Review Criterion: "A pedestrian pathway system shall extend throughout the development site and connect to adjacent sidewalks, and to all future phases of the development, as applicable."

Response: A contiguous concrete sidewalk is proposed along the west, south, and east sides of the building; the sidewalk along the north side of the building is interrupted due to a retaining wall required as a result of grading for tree preservation in the northeast corner of the property. The northwestern sidewalk segment connects to the pedestrian access point along Memorial Drive, which links up to an existing sidewalk in the right-of-way.

Safe, Direct, and Convenient Pathways
Subsection 4.154 (.01) B. 2.

A42. Review Criteria: “Pathways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas/playgrounds, and public rights-of-way and crosswalks based on all of the following criteria:

- a. Pedestrian pathways are designed primarily for pedestrian safety and convenience, meaning they are free from hazards and provide a reasonably smooth and consistent surface.
- b. The pathway is reasonably direct. A pathway is reasonably direct when it follows a route between destinations that do not involve a significant amount of unnecessary out-of-direction travel.
- c. The pathway connects to all primary building entrances and is consistent with the Americans with Disabilities Act (ADA) requirements.
- d. All parking lots larger than three acres in size shall provide an internal bicycle and pedestrian pathway pursuant to Section 4.155(.03)(B.)(3.)(d).”

Response:

- All proposed pathways are of smooth and consistent concrete and no hazards are evident on the site plan. Additionally, pathways are kept separate from drive aisles, and have been designed for pedestrian safety.
- All proposed pathways are straight and provide direct access to intended destinations.
- The pathways around the building connect to all primary building entrances.
- Where required, pathways meet ADA requirements or will be required to by the building code.
- No parking area is larger than 3 acres in size.

Vehicle/Pathway Separation
Subsection 4.154 (.01) B. 3.

A43. Review Criterion: “Except as required for crosswalks, per subsection 4, below, where a pathway abuts a driveway or street it shall be vertically or horizontally separated from the vehicular lane. For example, a pathway may be vertically raised six inches above the abutting travel lane, or horizontally separated by a row of bollards.”

Response: All pathways affected by this review are separated consistent with this subsection.

Crosswalks
Subsection 4.154 (.01) B. 4.

A44. Review Criterion: “Where a pathway crosses a parking area or driveway, it shall be clearly marked with contrasting paint or paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrast).”

Response: As indicated in the applicant’s site plan, all crosswalks will be marked by

contracting paint colors/stripping.

Pathway Width and Surface

Subsection 4.154 (.01) B. 5.

A45. Review Criteria: “Primary pathways shall be constructed of concrete, asphalt, brick/masonry pavers, or other durable surface, and not less than five (5) feet wide. Secondary pathways and pedestrian trails may have an alternative surface except as otherwise required by the ADA.”

Response: Primary pathways are the required width and will be constructed of concrete or asphalt.

Parking and Loading

General Parking Provisions

Subsection 4.155 (.02)

A46. Review Criteria: This subsection lists a number of general provisions for parking.

Response: The applicant has provided sufficient information demonstrating compliance with the provisions in this subsection applicable to Stage II Final Plan review. Among the information provided is sheet A001. Staff specifically points out the following:

- In relation to provision A. no waivers to parking standards have been requested
- In relation to provision B. all parking areas are accessible and usable for parking.
- In relation to provision C. the proposal involves demolition and new construction of an existing use on site (hotel), and parking requirements will be calculated based on current Code standards for this use.
- In relation to provision D. only one use will occupy a single structure on site.
- In relation to provision E. the proposed Hilton will be utilizing forty (40) parking spaces on the adjacent assisted living facility site as per a previous shared parking agreement; the applicant has provided satisfactory legal evidence securing full and permanent access (See Exhibit B2).
- In relation to provision G. forty (40) off-site parking spaces are proposed to remain in service to the site from the adjacent property, with the nearest parking space located within 500 feet of the main building. A copy of the access easement has been submitted by the applicant.
- In relation to provision H. no business activity is proposed on required parking spaces as part of this application.
- In relation to provision I. the subject site does not have any boundaries adjoining or within a residential district.
- In relation to provision J. a condition of approval will ensure parking spaces along the boundaries of the parking lot are provided with a bumper guard or curb at least six (6) inches in height.
- In relation to provision K. the parking area is paved and provided with adequate drainage.

- In relation to provision L. compliance with the outdoor lighting ordinance will prevent artificial lighting from shining into adjoining structures or affecting passersby.
- In relation to provision M. all the proposed uses are listed in the Code.
- In relation to provision N. no compact parking spaces are proposed.
- In relation to provision O. all planting areas that vehicles may overhang are seven feet (7') or greater in depth.

Functional Design of Parking, Loading, and Delivery Areas

Subsection 4.155 (.03) A.

A47. Review Criteria: "Parking and loading or delivery areas shall be designed with access and maneuvering area adequate to serve the functional needs of the site and shall:

1. Separate loading and delivery areas and circulation from customer and/or employee parking and pedestrian areas. Circulation patterns shall be clearly marked.
2. To the greatest extent possible, separate vehicle and pedestrian traffic."

Response: The functional needs of the site require parking for employees and customers with standard passenger vehicles, and a loading berth for truck delivery of supplies. The required amount of parking is provided, with drive aisles of widths adequate to accommodate two-way vehicular traffic; all turning radii are adequate. Access is being provided from Memorial Drive along the north property line; a secondary access point is located along the eastern property line, adjoining the subject side with a parking area on the adjacent assisted living facility's property. A loading berth meeting size requirements of the development code is provided and considered adequate to serve the expected amount of delivery to the site. The needs for Solid Waste and Recycling pick up vehicles and fire apparatus are being reviewed separately and have been approved by Republic Services and TVF&R.

The required loading and delivery berth is located on the south side of the complex, separate from the main customer areas.

Circulation patterns are clearly evident by the standard width of the drive aisles, which are equivalent to a local street without pavement markings, and the clear delineation of the edge of the drive aisles by painted parking stalls, landscape planters, and pedestrian walkways. With the exception of clearly marked crosswalks across drive aisles, the pedestrian circulation system is on raised sidewalks meeting the separation standards of Section 4.154.

Parking Area Landscaping

Subsection 4.155 (.03) B. 1.-3.

A48. Review Criteria: "Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:" Listed 1. through 3.

Response: As demonstrated by the applicant's submitted plan set, 22% of the site will be covered by landscaping (22,286 SF), which meets the minimum required by code two-fold. Nearly all of the landscaping is adjacent to parking areas, which effectively buffers

and minimizes the visual dominance of the parking and circulation areas from the public right-of-way off-site. The minimum ratio of tree planting areas to parking spaces is met through the proposed landscape plan, as at least one (1) tree will be planted for every eight (8) spaces; less than 200 parking spaces are proposed.

Parking and Loading Areas-Safe and Convenient Access

Subsection 4.155 (.03) C.

A49. Review Criteria: “Be designed for safe and convenient access that meets ADA and ODOT standards. All parking areas which contain ten (10) or more parking spaces, shall for every fifty (50) standard spaces., provide one ADA-accessible parking space that is constructed to building code standards, Wilsonville Code 9.000.”

Response: 143 standard parking stalls are provided, five (5) of which are ADA stalls, meeting the standard established in this subsection. ADA parking will also be reviewed as part of the review of the Building Code requirements for the Building Permit.

Parking Connectivity and Efficient On-site Circulation

Subsection 4.155 (.03) D.

A50. Review Criteria: “Where possible, parking areas shall be designed to connect with parking areas on adjacent sites so as to eliminate the necessity of utilizing the public street for multiple accesses or cross movements. In addition, on-site parking shall be designed for efficient on-site circulation and parking.”

Response: The subject parking area is connected to the parking area on the adjacent assisted living facility site by way of a secondary access point along the eastern property line. Parking is provided generally around the perimeter of the property with the hotel building centered on the property, which enables an efficient circular flow of traffic for on-site circulation and access to parking areas.

On-Street Parking

Subsection 4.155 (.03) F.

A51. Review Criteria: “On-street parking spaces, directly adjoining the frontage of and on the same side of the street as the subject property, may be counted towards meeting the minimum off-street parking standards.”

Response: No on-street parking spaces are part of the space count to meet the minimum parking standards.

Parking Minimum and Maximum

Subsection 4.155 (.03) G.

A52. Review Criteria: “Tables 5, below, shall be used to determine the minimum and maximum parking standards for various land uses. The minimum number of required parking spaces shown on Tables 5 shall be determined by rounding to the nearest whole parking space.”

Response: The applicant’s proposal meets the minimum parking requirements per Code; the required and proposed parking is as follows:

Use (as described by applicant)	Use (as listed in Section 4.155 Table 5)	Area (SF)	Ratio for Min (per 1000 sf)	Min	Max	Proposed
Hotel	Commercial Residential - Hotel	78,798 SF	1	79	N/A	143

The parking provided includes 5 ADA spaces.

Electric Vehicle Charging

Subsection 4.155 (.03) H.

A53. Review Criteria: “Electrical Vehicle Charging Stations:

1. Parking spaces designed to accommodate and provide one or more electric vehicle charging stations on site may be counted towards meeting the minimum off-street parking standards.
2. Modification of existing parking spaces to accommodate electric vehicle charging stations on site is allowed outright.”

Response: No electric vehicle charging stations are proposed.

Motorcycle Parking

Subsection 4.155 (.03) I.

A54. Review Criteria: “Motorcycle parking:

1. Motorcycle parking may substitute for up to 5 spaces or 5 percent of required automobile parking, whichever is less. For every 4 motorcycle parking spaces provided, the automobile parking requirement is reduced by one space.
2. Each motorcycle space must be at least 4 feet wide and 8 feet deep. Existing parking may be converted to take advantage of this provision.

Response: No motorcycle parking is proposed.

Bicycle Parking

Bicycle Parking-General Provisions

Subsection 4.155 (.04) A.

A55. Review Criteria: “Required Bicycle Parking - General Provisions.

1. The required minimum number of bicycle parking spaces for each use category is shown in Table 5, Parking Standards.
2. Bicycle parking spaces are not required for accessory buildings. If a primary use is listed in Table 5, bicycle parking is not required for the accessory use.

3. When there are two or more primary uses on a site, the required bicycle parking for the site is the sum of the required bicycle parking for the individual primary uses.
4. Bicycle parking space requirements may be waived by the Development Review Board per Section 4.118(.03)(A.)(9.) and (10.).

Response: The required and proposed bicycle parking is as follows:

Use (as described by applicant)	Use (as listed in Section 4.155 Table 5)	Number of Guestrooms	Ratio for Min (per 5 Room)	Min	Max	Proposed
Hotel	Commercial Residential - Hotel	118	1	24	N/A	24

24 bicycle spaces are proposed, 12 of which will be located outside the main building entrance, and 12 will be located in a secured indoor long-term bike parking room near the facility's meeting rooms.

Bicycle Parking-Standards
Subsection 4.155 (.04) B.

A56. Review Criteria: "Standards for Required Bicycle Parking

1. Each space must be at least 2 feet by 6 feet in area and be accessible without moving another bicycle.
2. An aisle at least 5 feet wide shall be maintained behind all required bicycle parking to allow room for bicycle maneuvering. Where the bicycle parking is adjacent to a sidewalk, the maneuvering area may extend into the right-of-way.
3. When bicycle parking is provided in racks, there must be enough space between the rack and any obstructions to use the space properly.
4. Bicycle lockers or racks, when provided, shall be securely anchored.
5. Bicycle parking shall be located within 30 feet of the main entrance to the building or inside a building, in a location that is easily accessible for bicycles. For multi-tenant developments, with multiple business entrances, bicycle parking may be distributed on-site among more than one main entrance."

Response: The minimum of 24 (12 short-term, 12 long-term) bicycle parking spaces are provided. 12 short-term spaces are located on each side of the main entrance near the pedestrian walkway. The short-term bike parking is provided in racks, which are shown in the applicant's materials to be anchored to cement and spaced appropriately such as to maintain sufficient space to use effectively. The interior long-term bike parking spaces are within 20 feet of a customer entry, directly across from the hotel's meeting rooms. However, specific design details have not been provided. A condition of approval

requires the spacing, maneuvering area, and anchoring requirements be met as well as the requirements to be in a secure or monitored location within the building.

Long-term Bicycle Parking Requirements and Standards

Subsection 4.155 (.04) C. 2.

A57. Review Criteria: “For a proposed multi-family residential, retail, office, or institutional development, or for a park and ride or transit center, where six (6) or more bicycle parking spaces are required pursuant to Table 5, 50% of the bicycle parking shall be developed as long-term, secure spaces. Required long-term bicycle parking shall meet the following standards:

a. All required spaces shall meet the standards in subsection (B.) above, and must be covered in one of the following ways: inside buildings, under roof overhangs or permanent awnings, in bicycle lockers, or within or under other structures.

b. All spaces must be located in areas that are secure or monitored (e.g., visible to employees, monitored by security guards, or in public view).

c. Spaces are not subject to the locational criterion of (B.)(5).”

Response: 12 of the 24 required bicycle parking spaces are long-term spaces provided inside the building. A Condition of Approval requires the spacing, maneuvering area, and anchoring requirements be met as well as the requirements to be in a secure or monitored location within the building.

Required Number of Loading Berths

Subsection 4.155 (.05)

A58. Review Criteria: “Every building that is erected or structurally altered to increase the floor area, and which will require the receipt or distribution of materials or merchandise by truck or similar vehicle, shall provide off-street loading berths on the basis of minimum requirements as follows:” listed 1. through 2. “A loading berth shall contain space twelve (12) feet wide, thirty-five (35) feet long, and have a height clearance of fourteen (14) feet. Where the vehicles generally used for loading and unloading exceed these dimensions, the required length of these berths shall be increased to accommodate the larger vehicles.”

Response: A minimum of one (1) loading berth is required, and one (1) is proposed on the south side of the building. In relation to dimensional standards, the proposed loading berth is 16.92’ in width and 41.78’ in length, thus meeting the requirements of this Subsection.

Carpool and Vanpool Parking Requirements

Subsection 4.155 (.06)

A59. Review Criteria: This subsection lists the requirements for carpool and vanpool parking.

Response: The applicant has not provided information on designated carpool or vanpool parking; this Subsection requires no less than five percent (5%) of the total spaces available be designated for carpool/vanpool parking. The applicant is proposing 143 parking spaces, 5% of which requires a minimum of eight (8) carpool/vanpool spaces. A

condition of approval will ensure at least eight (8) spaces are designated carpool/vanpool parking spaces are provided in close proximity to the main building entrance.

Access, Ingress, and Egress Section 4.167

A60. Review Criterion: “Each access onto streets or private drives shall be at defined points as approved by the City and shall be consistent with the public's health, safety and general welfare. Such defined points of access shall be approved at the time of issuance of a building permit if not previously determined in the development permit.”

Response: Primary vehicle access to the site will remain off Memorial Drive along the northern property line, as previously approved by the City. In addition, secondary access is provided at the east side of the site, which connects to an off-site parking area on the adjacent assisted living facility. All access points will remain as-is, and will continue to be consistent with prior City approvals and standards.

Double-Frontage Lots Section 4.169

A61. Review Criterion: “Buildings on double frontage lots (i.e., through lots) and corner lots must meet the front yard setback for principal buildings on both streets or tracts with a private drive.”

Response: The subject property is a double frontage lot; all setbacks are met.

Natural Features

Protection of Natural Features and Other Resources Section 4.171

A62. Review Criteria: This section provides for the protection of a number of natural features and other resources including: general terrain preparation, hillsides, trees and wooded areas, high voltage powerline easements and rights of way and petroleum pipeline easements, earth movement hazard areas, soil hazard areas, historic resources, and cultural resources.

Response: The property is currently developed with a two-building single tenant hotel. The topography is gently sloping to the west, and some minor grading will be performed to level the site in order to construct a single building, as opposed to maintaining the two-structure layout and present grade. The site has a significant amount of tree cover, with the densest wooded area being in the northeast corner of the property. Trees have been considered as part of site planning and as many of the trees in the northeast corner of the property as practicable are being retained. No other hillsides, powerline easements, etc. needing protection exist on the site.

Public Safety and Crime Prevention

Design to Deter Crime and Ensure Public Safety Subsection 4.175 (.01)

A63. Review Criteria: “All developments shall be designed to deter crime and insure public safety.”

Response: The applicant has not provided any summary findings in response to these criteria. Staff finds no evidence and has not received any testimony that the design of the site and buildings would lead to crime or negatively impact public safety.

Addressing and Directional Signing Subsection 4.175 (.02)

A64. Review Criteria: “Addressing and directional signing shall be designed to assure identification of all buildings and structures by emergency response personnel, as well as the general public.”

Response: The address is not shown on submitted building elevations. However, the applicant has proposed a directional sign that has been designed to assure identification of the hotel building. Additionally, a condition of approval requires addressing to meet building and fire code requirements.

Surveillance and Police Access Subsection 4.175 (.03)

A65. Review Criterion: “Areas vulnerable to crime shall be designed to allow surveillance. Parking and loading areas shall be designed for access by police in the course of routine patrol duties.”

Response: The parking and loading areas are easily assessable and no areas of particular vulnerability to crime have been identified warranting additional surveillance.

Lighting to Discourage Crime Subsection 4.175 (.04)

A66. Review Criterion: “Exterior lighting shall be designed and oriented to discourage crime.”

Response: Lighting has been designed in accordance with the City’s outdoor lighting standards, which will provide sufficient lighting to discourage crime.

Landscaping Standards

Purpose of Landscape, Screening, and Buffering Subsection 4.176 (.01)

A67. Review Criteria: “This Section consists of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing of installation. The City recognizes the ecological and economic value

of landscaping and requires the use of landscaping and other screening or buffering to:" Listed A. through K.

Response: In complying with the various landscape standards in Section 4.176 the applicant has demonstrated the Stage II Final Plan is in compliance with the landscape purpose statement.

Landscaping Standards and Code Compliance

Subsection 4.176 (.02) B.

A68. Review Criteria: "All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length"

Response: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Landscape Standards-Intent and Required Materials

Subsections 4.176 (.02) C. through I.

A69. Review Criteria: These subsections identify the various landscaping standards, including the intent of where they should be applied, and the required materials.

Response: As shown in their submitted landscape plans (sheet L2.01 of Exhibit B3) and described partially in their narrative, the applicant proposed an enhanced landscape meeting or exceeding City standards.

Landscape Area and Locations

Subsection 4.176 (.03)

A70. Review Criteria: "Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable."

Response: Applicant's sheet G1.01 of the submitted plan set indicates landscaping will cover 22,286 SF or 22 percent of the project site. Landscaping is proposed in more than three distinct areas, including the perimeter of the site, which provides screening of the off-street parking areas. Additionally, the applicant is providing landscaping adjacent to the building, and has retained several mature trees in the northeastern corner of the site,

which will soften the visual dominance of the structure. Lastly, the applicant has proposed several diverse, native species for the landscape plan.

Buffering and Screening

Subsection 4.176 (.04)

A71. Review Criteria: “Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.

B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.”

Response: While, the proposed use is adjacent to an assisted living facility, the underlying zone of PDC is the same, so the Screening and Buffering Overlay Zone has not been applied. The areas of most activity will be the parking areas, which are screened by perimeter landscaping utilizing a combination of high screen standard and multiple layers of the low screen standard. No outdoor storage is proposed, and all mechanical equipment is wholly contained within the building. The loading area is screened using a mix of Pacific wax myrtle, mock orange, Italian buckhorn, serviceberry, and hicks yew; the proposed parking lot trees and existing landscaping between the south side of the hotel property and the assisted living facility site will further buffer the loading berth from off-site view. No fences over 6 feet tall are proposed.

Landscape Plans

Subsection 4.176 (.09)

A72. Review Criteria: “Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated.”

Response: Applicant’s sheet L2.01 provides the required information.

Other Development Standards

General Conformance with Public Works Standards and TSP Subsection 4.177 (.01)

A73. Review Criteria: “Except as specifically approved by the Development Review Board, all street and access improvements shall conform to the Transportation Systems Plan and the Public Works Standards.”

Response: All development and any related public facility improvements are required to conform to the TSP and Public Works Standards.

Street Design Standards Subsection 4.177 (.02)

A74. Review Criteria: “All street improvements and intersections shall provide for the continuation of streets through specific developments to adjoining properties or subdivisions.”

Response: All the adjoining street sections have been developed with the appropriate curbs, utility strips, sidewalks, etc. according to the Public Works Standards; no street improvements or modifications are required or proposed as a result of this application. The applicant will maintain the shared access easement to the offsite parking area on the abutting eastern property. Additionally, vision clearance is required to be maintained on site.

Sidewalks Subsection 4.177 (.03)

A75. Review Criteria: “Sidewalks shall be provided on the public street frontage of all development.”

Response: The existing sidewalks, which were installed per Public Works Standards, will remain along the site’s public street frontage.

Access Drive Development Standards Subsection 4.177 (.08)

A76. Review Criteria: This subsection sets standards for access drives and travel lanes.

Response:

- All access drives are designed to provide a clear travel lane, free from obstructions.
- All travel lanes will be asphalt. Condition of Approval PDA 3 will ensure they are capable of carrying a 23-ton load.
- The site has adequate emergency access, and parking lanes encircle the building such as to provide better access for emergency apparatus. The development has been reviewed and approved with conditions by the Fire District. See Exhibit C6.

Mixed Solid Waste and Recyclables Storage
Section 4.179

A77. Review Criteria: This section establishes standards for mixed solid waste and recyclables storage in new multi-family residential and non-residential buildings.

Response: The required mixed solid waste and recyclables storage area is 79 SF. The proposed 22' by 13'-4" storage area would be approximately 293 SF, and 6' in height.

Outdoor Lighting

Sections 4.199.20 through 4.199.60

A78. Review Criterion: This section states that the outdoor lighting ordinance is applicable to "Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas" and "Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas." In addition the exempt luminaires and lighting systems are listed.

Response: The proposal is required to meet the Outdoor Lighting Standards. See Request C, Findings C34 through C42.

Underground Installation of Utilities

Sections 4.300-4.320

A79. Review Criteria: These sections list requirements regarding the underground installation of utilities.

Response: There are no existing overhead facilities that require undergrounding as part of this development. The proposed development will connect to the existing utilities on site.

Request B: DB17-0014 Minimum Lot Size and Height Waivers

Waivers: Waive Minimum Lot Size per Unit and Maximum Height

Waiver of Typical Development Standards

Subsection 4.118 (.03) A.

B1. Review Criteria: This subsection establishes that "notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purpose and objectives of Section 4.140, and based on findings of fact supported by the record" may waive a number of typical development standards including height and minimum lot area requirements.

Response: The applicant requests to waive the required minimum lot size of one thousand (1,000) SF for each unit, as well as the maximum allowable height of thirty-five (35) feet. Due to changes in the economic climate the applicant is requesting a minimum of 118 units to make the project financially feasible. Additionally, the applicant notes the increased height of the building (58 feet) is necessary in order to accommodate the increased number of units and accompanying food service, meeting spaces, and other

amenities available to guests. The typical development standards able to be waived pursuant to this subsection include both height and minimum lot size.

Purpose and Objectives of Planned Development Regulations
Subsection 4.140 (.01) B.

B2. Review Criteria: This subsection establishes the purpose of the Planned Development Regulations which are as follows:

- To take advantage of advances in technology, architectural design, and functional land use design;
- To recognize the problems of population density, distribution and circulation and to allow a deviation from rigid established patterns of land uses, but controlled by defined policies and objectives detailed in the comprehensive plan;
- To produce a comprehensive development equal to or better than that resulting from traditional lot land use development.
- To permit flexibility of design in the placement and uses of buildings and open spaces, circulation facilities and off-street parking areas, and to more efficiently utilize potentials of sites characterized by special features of geography, topography, size or shape or characterized by problems of flood hazard, severe soil limitations, or other hazards;
- To permit flexibility in the height of buildings while maintaining a ratio of site area to dwelling units that is consistent with the densities established by the Comprehensive Plan and the intent of the Plan to provide open space, outdoor living area and buffering of low-density development.
- To allow development only where necessary and adequate services and facilities are available or provisions have been made to provide these services and facilities.
- To permit mixed uses where it can clearly be demonstrated to be of benefit to the users and can be shown to be consistent with the intent of the Comprehensive Plan.
- To allow flexibility and innovation in adapting to changes in the economic and technological climate.

Response: Pursuant to Subsection 4.118 (.03) A. waivers must implement or better implement the purpose and objectives listed in this subsection. The applicant specifically requests the minimum lot area and height maximum for flexibility and innovation in adapting to changes in the economic climate. According to the applicant, accommodating structural mechanical systems for a hotel building requires at least 10-12 feet floor-to-floor, and that four-star hotel brands typically require a minimum of four-stories from an economic and quality perception perspective. A minimum number of rooms, and therefore a minimum building size and number of stories, are typically needed to make the food service, meeting spaces, and other amenities in the hotel viable. The applicant cites the economics of the hospitality industry as necessitating the proposed waivers.

Request C: DB17-0015 Site Design Review

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Site Design Review

Excessive Uniformity, Inappropriateness of Design, Etc.
Subsection 4.400 (.01) and Subsection 4.421 (.03)

- C1. Review Criteria:** “The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.” “Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor.”

Response: Staff summarizes the compliance with this subsection as follows:

Excessive Uniformity: The building exterior has been designed with a custom look unique to the Hilton Garden Inn brand, and is of a size and scale different from other buildings in the surrounding area. The proposed design changes provide increased diversity to the surrounding commercial uses, thus avoiding excessive uniformity.

Inappropriate or Poor Design of the Exterior Appearance of Structures: The proposed building is professionally designed with attention given to quality materials and the Site Design Review standards. The result is a professional design appropriate for Wilsonville.

Inappropriate or Poor Design of Signs: Signs have been professionally designed, and has found in Request E meet the standards for design in relation to architecture and landscaping on the site.

Lack of Proper Attention to Site Development: The appropriate professional services have been used to design the site incorporating unique features of the site including site size and shape and available access, demonstrating appropriate attention being given to site development.

Lack of Proper Attention to Landscaping: Landscaping is provided exceeding the area requirements, has been professionally designed by a landscape architect, and includes a variety of plant materials, all demonstrating appropriate attention being given to landscaping.

Purposes of Objectives of Site Design Review
Subsection 4.400 (.02) and Subsection 4.421 (.03)

C2. Review Criteria: “The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.” “The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:” Listed A through J.

Response: Staff summarizes the compliance with this subsection as follows:

Proper Functioning of the Site: Site functionality is reviewed during the Stage II Final Plan process, and site design review ensures the site details are consistent with the function shown in the Stage II plans. In this application the site development plans are consistent with the Stage II plans, and demonstrate the overall site circulation and site uses will meet functionality and visual standards.

Maintain a High Quality Visual Environment: The mid -1980’s building and surrounding site improvements maintain a dated architectural style, especially in relation to the surrounding environment with a new Subaru dealership directly across Interstate-5, and an updated restaurant (Black Bear Diner) recently finalized nearby to the north along Parkway. The proposed exterior to the building will result in replacement of the dated architectural features of the existing hotel with a contemporary style desired by tenants. The new construction includes the use of cement fiber board panel siding, a brick finish along the foundation, and a new paint palate reflecting the company’s corporate identity. The updated architecture of the site will greatly enhance the visual environment of Wilsonville, especially its presence from Interstate-5.

Encourage Originality, Flexibility, and Innovation: Innovation and flexibility have been used throughout the site design process. The applicant has carefully considered the site’s opportunities and constraints, and has worked on several iterations in order to achieve a design that meets the functionality, aesthetic, and tree preservation standards set by this Code.

Discourage Monotonous, Drab, Unsightly, Dreary, and Inharmonious Developments: The detailed review of the design standards and ability to request a different height as well as the applicant’s proposal to maintain a high quality visual environment, as described above, prevent the proposed development from being monotonous, drab, unsightly, dreary, or inharmonious.

Proper Relation to Sites: The building’s relation to the site effectively remains constant; the approximate location of the new hotel is in the same general area as the existing hotel to be removed. Entrances and windows and other architectural features are placed as to not create site conflicts or confusion.

Proper Relation to Surrounding Sites and Structures: The building and other site features’ relationship to surrounding sites and structures remain substantially similar to the hotel previously approved for the site.

Regard to Natural Terrain and Landscaping: Proper attention has been given to the natural terrain and landscaping; as many mature Douglas fir as feasible are being preserved in

the northeast corner of the site, such as to provide a visual buffer to the surrounding properties, as well as scale down the proposed height of the building.

Proper Attention Given to Exterior Appearances: The proposed exterior design and other site features have been professionally designed, and are being reviewed in detail to ensure proper attention is given to exterior appearances.

Protect and Enhance City's Appeal: As described above under "Maintain a High Quality Visual Environment" the proposal improves the visual appeal of Wilsonville, especially from Interstate-5. In addition, the project provides a four-star hotel development with such accommodations as breakfast service, a bar, meeting space, and pool/spa for guests, thus providing a service considered an amenity to the community and ultimately enhancing the City's appeal.

Stabilize and Improve Property Values, Prevent Blighted Areas: As described above under "Maintain a High Quality Visual Environment" the proposal is updating a building and site in disrepair with dated architecture. The remodel is expected to stabilize and improve the value of the property and vicinity as well as prevent the prominent building and site from becoming further blighted.

Adequate Public Facilities: City standards continue to be in place to ensure adequate facilities. The current review of architectural and minor site changes, as well as sign review, does not impact public facility capacity.

Beneficial Influence of Pleasant Environments: As described above under "Maintain a High Quality Visual Environment" the proposal is updating a hotel site with 1980's architecture, thus creating a more pleasant environment at the southern gateway to the City.

Reduce Crime through Physical Design and Site Layout: The proposed site modifications will not change physical design and site layout in relation to crime reduction. However, the new outdoor seating/guest lounge area will create more activity and eyes around the parking area to discourage criminal activity.

Foster Civic Pride and Community Spirit, Sustain the Comfort, Health, Tranquility, and Contentment of Residents, Attract New Residents: As described above under "Maintain a High Quality Visual Environment" and "Protect and Enhance City's Appeal" the proposal is updating a highly visible site along Wilsonville's Interstate-5 frontage. Seeing the site updated after having been occupied by an aging 1980's hotel and having a more pleasing, contemporary visual environment as well as enabling additional four-star lodging can foster civic pride and community spirit, sustain the comfort, health, tranquility, and contentment of residents, as well as attract new residents.

Site Design Review-Jurisdiction and Power of the Board

Section 4.420

- C3. Review Criteria:** The section states the jurisdiction and power of the Development Review Board in relation to site design review including the application of the section, that development is required in accord with plans, and variance information.

Response: A condition of approval has been included to ensure construction, site development, and landscaping are carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. No building permits will be granted prior to development review board approval. No variances are requested from site development requirements.

Site Design Review-Design Standards

Subsection 4.421 (.01)

C4. Review Criteria: “The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards.” Listed A through G.

Response: The applicant has provided sufficient information demonstrating compliance with the standards of this subsection. Among the information provided is a written response to these standards on pages 1 through 3 of their compliance narrative in Exhibit B2.

Applicability of Design Standards to Various Site Features

Subsection 4.421 (.02)

C5. Review Criteria: “The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.”

Response: Design standards have been applied to the proposed building, all structures, and other site features.

Objectives of Section 4.400 Serve as Additional Criteria and Standards

Subsection 4.421 (.03)

C6. Review Criteria: “The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.”

Response: The purposes and objectives in Section 4.400 are being used as additional criteria and standards; see Finding C2 above.

Site Design Review-Conditions of Approval

Subsection 4.421 (.05)

C7. Review Criterion: “The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code.”

Response: No additional conditions of approval are recommended to ensure the proper and efficient functioning of the development.

Color or Materials Requirements

Subsection 4.421 (.06)

C8. Review Criterion: “The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City.”

Response: It is the professional opinion of staff that the proposed coloring is appropriate for the proposed development and no additional requirements are necessary. See materials information in the applicant’s narrative and plan set, Exhibits B2 and B3.

Design of Trash and Recycling Enclosures

Section 4.430

C9. Review Criteria: “The following locations, design and access standards for mixed solid waste and recycling storage areas shall be applicable to the requirements of Section 4.179 of the Wilsonville City Code.” Listed (.02) A. through (.04) C.

Response: Sheet A8.02 of Exhibit B23 shows an enclosure meeting all the standards listed in this Section. The enclosure has also been approved by the franchise solid waste hauler. See Exhibit B2.

Site Design Review-Procedures

Section 4.440

C10. Review Criteria: “A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:” Listed A through F.

Response: The applicant has submitted the required additional materials, as applicable.

Time Limit on Approval

Section 4.442

C11. Review Criterion: “Site design review approval shall be void after two (2) years unless a building permit has been issued and substantial development pursuant thereto has taken place; or an extension is granted by motion of the Board.

Response: The Applicant has indicated that they will pursue development within two (2) years and it is understood that the approval will expire after 2 years if a building permit hasn’t been issued unless an extension has been granted by the board.

Landscape Installation or Bonding

Subsection 4.450 (.01)

C12. Review Criterion: “All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to one

hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City shall be returned to the applicant."

Response: The condition of approval will assure installation or appropriate security at the time occupancy is requested.

Approved Landscape Plan Binding

Subsection 4.450 (.02)

C13. Review Criterion: "Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code."

Response: The condition of approval shall provide ongoing assurance this criterion is met.

Landscape Maintenance and Watering

Subsection 4.450 (.03)

C14. Review Criterion: "All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval."

Response: A condition of approval will ensure landscaping is continually maintained in accordance with this subsection.

Addition and Modifications of Landscaping

Subsection 4.450 (.04)

C15. Review Criterion: "If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the City's development review process, that removal or modification must first be approved through the procedures of Section 4.010."

Response: A condition of approval shall provide ongoing assurance that this criterion is met by preventing modification or removal without the appropriate City review.

Parking

Provision and Maintenance of Off-Street Parking

Subsection 4.155 (.02)

C16. Review Criteria: This subsection lists general provisions for parking, A. through O.

Response: The design of the parking described and illustrated in the applicant's submitted narrative and plans in relation to these provisions are consistent with the purpose of site design review and the proposed Stage II Final Plan for the proposed project, or will be made so by conditions of approval. See Finding A46 under Request A.

Landscaping of Parking Areas

Subsection 4.155 (.03) B. 1.-3.

C17. Review Criteria: "Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:" Listed 1. through 3.

Response: The landscaping of parking areas is consistent with the purpose of site design review and the proposed Stage II Final Plan for the proposed project. See Finding A48 under Request A.

Protection of Natural Features and Other Resources

Section 4.171

C18. Review Criterion: This section provides for the protection of a number of natural features and other resources including: general terrain preparation, hillsides, trees and wooded areas, high voltage powerline easements and rights of way and petroleum pipeline easements, earth movement hazard areas, soil hazard areas, historic resources, and cultural resources.

Finding: This criterion is satisfied.

Details of Finding: The proposed design of the site provides for protection of natural features to the greatest extent feasible and other resources consistent with the proposed Stage II Final Plan for the site, as well as the purpose and objectives of site design review. See Finding A62 under Request A.

Landscaping

Landscape Standards and Compliance with Code

Subsection 4.176 (.02) B.

C19. Review Criterion: "All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length"

Response: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Landscape Standards-Intent and Required Materials
Subsections 4.176 (.02) C. through I.

C20. Review Criteria: These subsections identify the various landscaping standards, including the intent of where they should be applied, and the required materials.

Response: The minimum or higher standard has been applied throughout different landscape areas of the site and landscape materials are proposed to meet each standard in the different areas. Site Design Review is being reviewed concurrently with the Stage II Final Plan which includes a thorough analysis of the functional application of the landscaping standards. See Finding A69 under Request A.

Landscape Area and Locations
Subsection 4.176 (.03)

C21. Review Criteria: “Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable.”

Response: Consistent with the proposed Stage II Final Plan for the site, applicant’s sheet L2.01 indicates landscaping will cover 22 percent of the site. Landscaping is proposed in a variety of different areas described in Finding A70. Planting areas are provided around the proposed building and surrounding parking areas. A wide variety of plants have been proposed to achieve a professional design. The design includes consideration of using native plants, including use of Vine Maple, Pacific Dogwood, Oregon Ash, Crimson Spire Oak, Forest Green Oak, and Douglas fir.

Buffering and Screening
Subsection 4.176 (.04)

C22. Review Criteria: “Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.

B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval."

Response: Consistent with the proposed Stage II Final Plan, adequate screening is proposed. See Finding A71 under Request A.

Plant Materials-Shrubs and Groundcover

Subsection 4.176 (.06) A.

C23. Review Criteria: This subsection establishes plant material and planting requirements for shrubs and ground cover.

Response: The applicant's planting plan lists shrub and groundcover sizes meeting the requirements of this subsection; all other detailed requirements of this subsection will be met by a condition of approval.

Plant Materials-Trees

Subsection 4.176 (.06) B.

C24. Review Criteria: This subsection establishes plant material requirements for trees.

Response: The plants material requirements for trees will be met as follows:

- The applicant's planting plan (sheet L2.01 of Exhibit B3 shows all trees as B&B (Balled and Burlapped)
- The applicant's planting plan lists tree sizes meeting requirements.
- A condition of approval will ensure the remaining criteria of this subsection are met.

Plant Materials-Large Buildings

Subsection 4.176 (.06) C.

C25. Review Criteria: "Where a proposed development includes buildings larger than twenty-four (24) feet in height or greater than 50,000 square feet in footprint area, the Development Review Board may require larger or more mature plant materials:" Listed 1.-3.

Response: Appropriate plant materials are provided for the development no requirements for larger or more mature trees are recommended.

Plant Materials-Street Trees

Subsection 4.176 (.06) D.

C26. Review Criteria: This subsection establishes plant material requirements for street trees.

Response: As the parking lot is less than three (3) acres in size, no new street trees are proposed or required as part of this application.

Types of Plant Species
Subsection 4.176 (.06) E.

C27. Review Criteria: This subsection discusses use of existing landscaping or native vegetation, selection of plant materials, and prohibited plant materials.

Response: The applicant has provided sufficient information in their landscape plan (sheet L2.01) showing the proposed landscape design meets the standards of this subsection.

Tree Credit
Subsection 4.176 (.06) F.

C28. Review Criteria: “Existing trees that are in good health as certified by an arborist and are not disturbed during construction may count for landscaping tree credit as follows:

Existing trunk diameter	Number of Tree Credits
18 to 24 inches in diameter	3 tree credits
25 to 31 inches in diameter	4 tree credits
32 inches or greater	5 tree credits:”

Maintenance requirements listed 1. through 2.

Response: The applicant is requesting four (4) preserved trees be counted as tree credits pursuant to this subsection, resulting in a total of seventeen (17) tree credits based on respective sizes. Preserved tree diameters are noted on sheet L2.01 of the applicant’s submitted plan set. A condition of approval will ensure any preserved tree that cannot be maintained will be replaced by the property owner within five (5) years of occupancy.

Exceeding Plant Material Standards
Subsection 4.176 (.06) G.

C29. Review Criterion: “Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met.”

Response: The selected landscape materials do not violate any height or visions clearance requirements.

Installation and Maintenance of Landscaping
Subsection 4.176 (.07)

C30. Review Criteria: This subsection establishes installation and maintenance standards for landscaping.

Response: The installation and maintenance standards are or will be met as follows:

- Plant materials are required to be installed to current industry standards and be properly staked to ensure survival
- Plants that die are required to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City.
- Notes 1 through 10 on the applicant’s conceptual irrigation plan (sheet L3.01) provide specific details on the plants being irrigated by an automatic sprinkler system, as well as drip irrigation for proposed trees, shrubs, and groundcover.
- A condition of approval will ensure the remaining criteria of this subsection are met.

Landscape Plans
Subsection 4.176 (.09)

- C31. Review Criterion:** “Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated.”
Response: Applicant’s sheet L2.01 provides the required information.

Completion of Landscaping
Subsection 4.176 (.10)

- C32. Review Criterion:** “The installation of plant materials may be deferred for a period of time specified by the Board or Planning Director acting on an application, in order to avoid hot summer or cold winter periods, or in response to water shortages. In these cases, a temporary permit shall be issued, following the same procedures specified in subsection (.07)(C)(3), above, regarding temporary irrigation systems. No final Certificate of Occupancy shall be granted until an adequate bond or other security is posted for the completion of the landscaping, and the City is given written authorization to enter the property and install the required landscaping, in the event that the required landscaping has not been installed. The form of such written authorization shall be submitted to the City Attorney for review.”
Response: The applicant has not requested to defer installation of plant materials.

Mixed Solid Waste and Recyclables Storage
Section 4.179

- C33. Review Criterion:** This section establishes standards for mixed solid waste and recyclables storage in new multi-family residential and non-residential buildings.
Response: The design of the proposed trash enclosure area is consistent with the proposed Stage II Final Plan in relation to this section and the location, design, and access standards for mixed solid waste and recycling areas. See Findings A77 and C9.

Outdoor Lighting

Applicability of Outdoor Lighting Standards and Major Additions
Sections 4.199.20 and 4.199.60

- C34. Review Criterion:** Section 4.199.20 states that the outdoor lighting ordinance is applicable to “Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas” and “Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.” In addition the exempt luminaires and lighting systems are listed. Section 4.199.60 identifies the threshold for major additions.

Response: A new exterior lighting system is being installed for a new commercial development. The Outdoor Lighting standards are thus applicable.

Outdoor Lighting Zones
Section 4.199.30

C35. Review Criterion: “The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance.”

Response: The project site is within LZ 2 and the proposed outdoor lighting systems will be reviewed under the standards of this lighting zone.

Performance or Prescriptive Option for Compliance
Subsection 4.199.40 (.01) A.

C36. Review Criteria: “All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.

Response: The applicant has elected to comply with the Prescriptive Option.

Wattage and Shielding
Subsection 4.199.40 (.01) B. 1.

C37. Review Criteria: “The maximum luminaire lamp wattage and shielding shall comply with Table 7.”

Table 7: Maximum Wattage And Required Shielding				
Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less

Response: A shown on the applicant’s lighting plans and corresponding cut sheets all lighting proposed does not exceed the maximum allowed wattage.

Compliance with Oregon Energy Efficiency Specialty Code
Subsection 4.199.40 (.01) B. 2.

C38. Review Criteria: “Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the Oregon Energy Efficiency Specialty Code, Exterior Lighting.

Response: The applicant is complying with the Oregon Energy Efficiency Specialty Code.

Mounting Height

Subsection 4.199.40 (.01) B. 3.

C39. **Review Criteria:** “The maximum pole or mounting height shall be consistent with Table 8.”

Table 8: Maximum Lighting Mounting Height In Feet			
Lighting Zone	Lighting for private drives, driveways, parking, bus stops and other transit facilities	Lighting for walkways, bikeways, plazas and other pedestrian areas	All other lighting
LZ 2	40	18	8

Response: All exterior mounted lighting is for private drives and parking, and is shown on the lighting plans mounted less than 40 feet high. Building mounted lighting is much lower than the maximum 4 feet above the tallest part of the building.

Luminaire Setback

Subsection 4.199.40 (.01) B. 3.

C40. **Review Criteria:** “Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:

Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.

Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times the mounting height of the luminaire, measured from the abutting parcel’s setback line. (Any variance or waiver to the abutting property’s setback shall not be considered in the distance calculation).

Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than 3 mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.

Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.

Exception 5: Lighting adjacent to SROZ areas shall be set back 3 times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area.”

Response: On all sides the subject property is bordered by the same base zoning and the same or greater lighting zone. Staff understands the 3 times mounting height setback to only apply where the property abuts a lower lighting district.

Lighting Curfew

Subsection 4.199.40 (.02) D.

C41. Review Criteria: “All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:

1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10; or
2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50% of the requirements set forth in the Oregon Energy Efficiency Specialty Code unless waived by the DRB due to special circumstances; and
3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.

The following are exceptions to curfew:

- a. Exception 1: Building Code required lighting.
- b. Exception 2: Lighting for pedestrian ramps, steps and stairs.
- c. Exception 3: Businesses that operate continuously or periodically after curfew.

Response: As per the applicant’s response finding to site lighting (Exhibit B2), each lighting area will be controlled with a fully programmable time-based lighting control system that will initiate operation at dusk. As the proposed use will operate 24-hours a day and thus meets the description of Exception 3 to the lighting curfew, the parking lot lighting will be fully operational from dusk to dawn. The courtyard lighting will be extinguished at 11 PM, which is one hour after the end of restaurant and bar service hours.

Outdoor Lighting Standards Submittal Requirements

Sections 4.199.40 4.199.50

C42. Review Criteria: These sections identify the Outdoor Lighting Standards for Approval and Submittal Requirements.

Response: The applicant has provided the necessary information consistent with this section.

Request D: DB17-0016 Type C Tree Plan

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Access to Site for Tree Related Observation

Subsection 4.600.50 (.03) A.

D1. Review Criterion: “By submission of an application, the applicant shall be deemed to have authorized City representatives to have access to applicant’s property as may be needed to verify the information provided, to observe site conditions, and if a permit is granted, to verify that terms and conditions of the permit are followed.”

Response: It is understood the City has access to the property to verify information regarding trees.

Type C Tree Removal Review Authority
Subsection 4.610.00 (.03) B.

- D2. Review Criterion:** “Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council, if subsequently reviewed by the Council.”
Response: The requested removal is connected to site plan review by the Development Review Board for new development. The tree removal is thus being reviewed by the DRB.

Conditions Attached to Type C Tree Permits
Subsection 4.610.00 (.06) A.

- D3. Review Criterion:** “Conditions. Attach to the granting of the permit any reasonable conditions considered necessary by the reviewing authority including, but not limited to, the recording of any plan or agreement approved under this subchapter, to ensure that the intent of this Chapter will be fulfilled and to minimize damage to, encroachment on or interference with natural resources and processes within wooded areas;”
Response: No additional conditions are recommended pursuant to this subsection.

Completion of Operation
Subsection 4.610.00 (.06) B.

- D4. Review Criterion:** “Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:” “Fix a reasonable time to complete tree removal operations;”
Response: It is understood the tree removal will be completed by the time construction of the hotel is completed, which is a reasonable time frame for tree removal.

Security
Subsection 4.610.00 (.06) C.

- D5. Review Criterion:** “Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:” “Require the Type C permit grantee to file with the City a cash or corporate surety bond or irrevocable bank letter of credit in an amount determined necessary by the City to ensure compliance with Tree Removal Permit conditions and this Chapter. 1. This requirement may be waived by the Planning Director if the tree removal must be completed before a plat is recorded, and the applicant has complied with WC 4.264(1) of this Code.”
Response: No bond is anticipated to be required to ensure compliance with the tree removal plan as a bond is required for overall landscaping.

Standards for Tree Removal, Relocation or Replacement
Subsection 4.610.10 (.01)

D6. Review Criteria: “Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:” Listed A. through J.

Response: The standards of this subsection are met as follows:

- The proposed tree removal is not within the Significant Resource Overlay Zone.
- The applicant states tree preservation was taken into consideration during the design process, and resulted in the preservation of as many trees on the site as feasible without impacting the ability to develop the property.
- There is a stand of mature Douglas fir towards the northeastern corner of the property, several of which will be preserved by way of a design alternative solution involving the grading on site. In order to avoid excessive grading that will impact/require the removal of the aforementioned Douglas firs, a retaining wall will be built along segments of the northern and eastern facades such as to avoid completely leveling the immediate area for the foundation.
- Land clearing will not exceed the permitted areas.
- It is understood the proposed development will comply with all applicable statutes and ordinances.
- The necessary tree replacement and protection is planned according to the requirements of the tree preservation and protection ordinance.
- Tree removal is limited, either as proposed or by condition of approval, to where it is necessary for construction or to address nuisances or where the health of the trees warrants removal.
- A tree survey has been provided.
- No utilities are proposed to be located where they would cause adverse environmental consequences.

Type C Tree Plan Reviewed with Stage II Final Plan
Subsection 4.610.40 (.01)

D7. Review Criteria: “Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of this subchapter and all applicable review criteria of Chapter 4. Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process, and any plan changes made that affect trees after Stage II review of a development application shall be subject to review by DRB. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not

commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled."

Response: The proposed Type C Tree Plan is being reviewed concurrently with the Stage II Final Plan.

Submission of Tree Maintenance and Protection Plan

Section 4.610.40 (.02)

D8. Review Criteria: "The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:" Listed A. 1. through A. 7.

Finding: These criteria are satisfied.

Details of Finding: The applicant has submitted the necessary copies of a Tree Maintenance and Protection Plan. See the arborist's plan and report, Exhibit B2. Tree locations are shown on Sheet L1.01 of Exhibit B3, Applicant's Plan Set.

Tree Replacement Requirement

Subsection 4.620.00 (.01)

D9. Review Criterion: "A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal."

Response: 51 trees are proposed for removal, Trees are proposed to be planted exceeding a one to one ratio.

Basis for Determining Replacement

Subsection 4.620.00 (.02)

D10. Review Criteria: "The permit grantee shall replace removed trees on a basis of one (1) tree replanted for each tree removed. All replacement trees must measure two inches (2") or more in diameter."

Response: 72 trees are proposed for removal; the applicant is requesting 17 tree credits for 4 mature trees on site to be preserved, totaling a combined d.b.h. of 123", thus requiring a total of 55 trees for mitigation. The applicant is proposing to replant 57 trees, per the landscape plan on page L2.01 of the applicant's plan set, thus exceeding a one to one ratio. Trees will meet the minimum caliper requirement or will be required to by Condition of Approval.

Replacement Tree Requirements

Subsection 4.620.00 (.03)

D11. Review Criteria: "A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.

A. Replacement trees shall have shade potential or other characteristics comparable to the removed trees, shall be appropriately chosen for the site from an approved tree

species list supplied by the City, and shall be state Department of Agriculture Nursery Grade No. 1 or better.

B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee's successors-in-interest for two (2) years after the planting date.

C. A "guaranteed" tree that dies or becomes diseased during that time shall be replaced.

D. Diversity of tree species shall be encouraged where trees will be replaced, and diversity of species shall also be maintained where essential to preserving a wooded area or habitat."

Response: Conditions of approval PDD3 through PDD6 will ensure the relevant requirements of this subsection are met.

Replacement Tree Stock Requirements

Subsection 4.620.00 (.04)

D12. Review Criteria: "All trees to be planted shall consist of nursery stock that meets requirements of the American Association of Nurserymen (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade."

Response: Condition of Approval PDD4 will ensure the standards of this Subsection are met.

Replacement Trees Locations

Subsection 4.620.00 (.05)

D13. Review Criteria: "The City shall review tree relocation or replacement plans in order to provide optimum enhancement, preservation and protection of wooded areas. To the extent feasible and desirable, trees shall be relocated or replaced on-site and within the same general area as trees removed."

Response: The applicant proposes to mitigate for all removed trees on site and in the appropriate locations for the proposed development.

Tree Protection During Construction

Section 4.620.10

D14. Review Criteria: "Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:" Listed A. through D.

Response: Condition of approval PDD6 shall ensure the applicable requirements of this Section will be met.

Request E: DB17-0017 Class III Sign Permit

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Review Process

Subsection 4.031 (.01) M. and Subsection 4.156.02 (.03)

E1. Review Criteria: These subsections establish that Class III Sign Permits are reviewed by the Development Review Board.

Response: The application qualifies as a Class III Sign Permit and is being reviewed by the Development Review Board.

Class III Sign Permits Generally

Subsection 4.156.02 (.06)

E2. Review Criteria: “Sign permit requests shall be processed as a Class III Sign Permit when associated with new development, or redevelopment requiring DRB review, and not requiring a Master Sign Plan; when a sign permit request is associated with a waiver or non-administrative variance; or when the sign permit request involves one or more freestanding or ground mounted signs greater than eight (8) feet in height in a new location.”

Response: The proposal is associated with new development requiring DRB review and does not require a Master Sign Plan as it involves a single tenant.

Class III Sign Permit Submission Requirements

Subsection 4.156.02 (.06) A.

E3. Review Criteria: This subsection identifies submission requirements for Class III Sign Permits, which includes the submission requirements for Class II sign permits.

Response: As indicated in the table below the Applicant has satisfied the submission requirements:

Requirement	Submitted	Waiver Granted	Condition of Approval	Not Applicable	Additional findings/ not es
		Info Already Available to	Info Not Necessary for		
Completed Application Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Sign Drawings or Descriptions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Documentation of Building/Tenant Space Lengths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Drawings of Sign Placement of Building Facades	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Project Narrative	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Information on Any Requested Waivers or Variances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Subsection 4.156.02 (.06) B. Class III Sign Permit Review Criteria

Class II Sign Permit Review Criteria: Generally and Site Design Review
 Subsection 4.156.02 (.05) E.

- E4. Review Criteria:** “Class II Sign Permits shall satisfy the sign regulations for the applicable zoning district and the Site Design Review Criteria in Sections 4.400 through 4.421,”
Response: As indicated in Findings C1 through C8 these criteria are met.

Class II Sign Permit Review Criteria: Compatibility with Zone
 Subsection 4.156.02 (.05) E. 1.

- E5. Review Criteria:** “The proposed signage is compatible with developments or uses permitted in the zone in terms of design, materials used, color schemes, proportionality, and location, so that it does not interfere with or detract from the visual appearance of surrounding development;”
Response: The proposed signage is typical of and compatible with development within the PDC zones. This includes a design and colors reflecting corporate identity, illuminated channel letters and logos and internally illuminated freestanding signs on brick veneer bases. The placement of signs on buildings is in recognizable sign bands, and proportional to the building facades. No evidence exists nor has testimony been received that the subject signs would detract from the visual appearance of the surrounding development.

Class II Sign Permit Review Criteria: Nuisance and Impact on Surrounding Properties
 Subsection 4.156.02 (.05) E. 2.

- E6. Review Criteria:** “The proposed signage will not create a nuisance or result in a significant reduction in the value or usefulness of surrounding development;”
Response: There is no evidence and no testimony has been received that the subject signs would create a nuisance or negatively impact the value of surrounding properties.

Class II Sign Permit Review Criteria: Items for Special Attention
Subsection 4.156.02 (.05) E. 3.

- E7. **Review Criteria:** "Special attention is paid to the interface between signs and other site elements including building architecture and landscaping, including trees."
Response: The building signs are within an architectural feature identifiable as a sign band with a buffer within the sign band around the sign, which demonstrates consideration of the interface between the signs and building architecture. No sign-tree conflicts have been noted.

Sign Measurement

Measurement of Cabinet Signs and Similar
Subsection 4.156.03 (.01) A.

- E8. **Review Criteria:** "The area for signs enclosed by cabinet, frame, or other background (including lighted surface) not otherwise part of the architecture of a building or structure shall be the area of a shape drawn around the outer dimension of the cabinet, frame, or background."
Response: The freestanding sign along Parkway, the monument sign along SW Memorial Drive, as well as directional sign, are all measured consistent with this subsection.

Measurement of Individual Element Signs
Subsection 4.156.03 (.01) B.

- E9. **Review Criteria:** "The area for signs constructed of individual elements (letters, figures, etc.) attached to a building wall or similar surface or structure shall be the summed area of up to three squares, rectangles, circles, or triangles drawn around all sign elements."
Response: The proposed building signs have been measured consistent with this subsection using rectangles.

Measurement of Sign Height Above Ground
Subsection 4.156.03 (.02) A.

- E10. **Review Criteria:** "The height above ground of a freestanding or ground-mounted sign is measured from the average grade directly below the sign to the highest point of the sign or sign structure except as follows:" Listed 1.-2.
Response: The proposed signs have been measured consistent with this subsection.

Measurement of Sign Height and Length
Subsection 4.156.03 (.03) A.-B.

- E11. **Review Criteria:** "Height of a sign is the vertical distance between the lowest and highest points of the sign."
Length of a sign is the horizontal distance between the furthest left and right points of the sign."
Response: The proposed signs have been measured consistent with this subsection.

Freestanding and Ground Mounted Signs in the PDC, PDI, and PF Zones

General Allowance

Subsection 4.156.08 (.01) A.

E12. Review Criteria: “One freestanding or ground mounted sign is allowed for the first two-hundred (200) linear feet of site frontage. One additional freestanding or ground mounted sign may be added for through and corner lots having at least two-hundred (200) feet of frontage on one street or right-of-way and one-hundred (100) feet on the other street or right-of-way.”

Response: The subject site has frontage on both Parkway Ave. and Memorial Drive, and is eligible for signs on both frontages.

Allowed Height

Subsection 4.156.08 (.01) B.

E13. Review Criteria: “The allowed height above ground of a freestanding or ground mounted sign is twenty (20) feet except as noted in 1-2 below.”

Response: A sign along Parkway Ave., on a parallel contiguous portion with I-5 frontage, is allowed to be up to 20 feet as only a single tenant is involved. The sign along Memorial Drive is also limited to twenty (20) feet in height. Neither proposed sign is requesting a height greater than twenty (20) feet.

Allowed Area

Subsection 4.156.08 (.01) C.

E14. Review Criteria: This subsection identifies the allowed area for freestanding signs.

Response: The signs pertain to a single tenant with more than 26,000 square feet of gross floor area. Thus each freestanding sign is allowed to be up to 64 square feet, including the sign along Parkway (a parallel contiguous street section of Interstate – 5). The applicant is proposing a 58 SF freestanding sign along Parkway Ave., and a 22.75 SF freestanding sign along Memorial Dr.

Pole or Sign Support Placement

Subsection 4.156.08 (.01) D.

E15. Review Criterion: “Pole or sign support placement shall be installed in a full vertical position.”

Response: All sign supports are proposed to be in a full vertical position.

Extending Over Right-of-Way, Parking, and Maneuvering Areas

Subsection 4.156.08 (.01) E.

E16. Review Criterion: “Freestanding and ground mounted signs shall not extend into or above public rights-of-way, parking areas, or vehicle maneuvering areas.”

Response: Freestanding signs are not proposed to extend into or above the listed areas.

Design of Freestanding Signs to Match or Complement Design of Buildings
Subsection 4.156.08 (.01) G.

E17. Review Criterion: “Freestanding and ground mounted signs shall be designed to match or complement the architectural design of buildings on the site.”

Response: The monument and freestanding signs along Parkway Ave. and Memorial Dr. are set on a brick veneer base that matches the brick base on the hotel building. Additionally, the signs for both the monument and freestanding sign are consistent with the branding appearing in the building signs. Both the colors and materials used for the signage are consistent with those used on the proposed building.

Width vs. Height of Signs Over 8 Feet
Subsection 4.156.08 (.01) H.

E18. Review Criterion: “For freestanding and ground mounted signs greater than eight (8) feet in height, the width of the sign shall not exceed the height.”

Response: The freestanding sign along Parkway Ave. is greater than 8 feet in height, and is much less in width than in height.

Sign Setback
Subsection 4.156.08 (.01) J.

E19. Review Criteria: “Freestanding and ground mounted signs shall be no further than fifteen (15) feet from the property line and no closer than two (2) feet from a sidewalk or other hard surface in the public right-of-way.”

Response: The freestanding sign along Parkway Ave. is approximately 14 feet from the property line and the monument sign along Memorial Dr. is approximately three (3) feet from the property line.

Address Requirement
Subsection 4.156.08 (.01) K.

E20. Review Criteria: “Except for those signs fronting Interstate 5, freestanding and ground mounted signs shall include the address number of associated buildings unless otherwise approved in writing by the City and the Fire District.”

Response: A condition of approval requires the address unless otherwise approved by TVF&R.

Design of Sign Based on Initial Tenant Configuration and Size
Subsection 4.156.08 (.01) L.

E21. Review Criteria: “When a sign is designed based on the number of planned tenant spaces it shall remain a legal, conforming sign regardless of the change in the number of tenants or configuration of tenant spaces.”

Response: A development is being designed for a single tenant and the signs are being planned accordingly.

Building Signs in the PDC, PDI , and PF Zones

Sign Eligible Facades

Subsection 4.156.08 (.02) A.

E22. Review Criteria: “Building signs are allowed on a facade of a tenant space or single tenant building when one or more of the following criteria are met:

1. The facade has one or more entrances open to the general public;
2. The facade faces a lot line with frontage on a street or private drive with a cross section similar to a public street, and no other buildings on the same lot obstruct the view of the building facade from the street or private drive; or
3. The facade is adjacent to the primary parking area for the building or tenant.”

Response: The facades on which signage is proposed are eligible as follows:

Façade	Sign Eligible	Criteria making sign eligible
South	Yes	Adjacent to primary parking area, and façade faces a lot line with unobstructed view from Interstate – 5
West	Yes	Primary entrance open to general public

Building Sign Area Allowed

Subsection 4.156.08 (.02) B.

E23. Review Criteria: This subsection includes a table identifying the sign area allowed for facades based on the linear length of the façade. Exception are listed 2. through 5.

Response: The proposed sign area is within the allowance for each façade or waivers have been requested as follows:

Façade	Linear Length	Sign Area Allowed	Proposed Sign Area
South	Approx. 193 feet	108 SF	47 SF
West	Approx. 186 feet	96 SF	51.5 SF

Calculating Linear Length to Determine Sign Area Allowed.

Subsection 4.156.08 (.02) B. 6.

E24. Review Criteria: “For facades of a single tenant building the length the facade measured at the building line, except as noted in a. and b. below. For multi-tenant buildings the width of the façade of the tenant space shall be measured from the centerline of the party walls or the outer extent of the exterior wall at the building line, as applicable, except as noted

in a. and b. below. Applicants shall provide the dimensions needed to calculate the length. Each tenant space or single occupant building shall not be considered to have more than five (5) total facades.”

Response: The applicant has supplied the required measurements used to determine linear lengths according to this subsection.

Building Sign Length Allowed

Subsection 4.156.08 (.02) C.

E25. Review Criterion: “The length of individual tenant signs shall not exceed seventy-five (75) percent of the length of the facade of the tenant space.”

Response: None of the facades have signs exceeding seventy-five (75) percent of the length of the façade.

Building Sign Height Allowed

Subsection 4.156.08 (.02) D.

E26. Review Criteria: “The height of building signs shall be within a definable sign band, fascia, or architectural feature and allow a definable space between the sign and the top and bottom of the sign band, fascia, or architectural feature.”

Response: All of the proposed building signs are within a definable architectural feature and have a definable space between the sign and the top and bottom of the architectural feature.

Building Sign Types Allowed

Subsection 4.156.08 (.02) E.

E27. Review Criterion: “Types of signs permitted on buildings include wall flat, fascia, projecting, blade, marquee and awning signs. Roof-top signs are prohibited.”

Response: All the proposed buildings signs are wall flat, which is an allowable type.

Additional Signs: Directional Signs

Subsection 4.156.08 (.03) A.

E28. Review Criteria: “Notwithstanding the signs allowed based on the site in (.01) and (.02) above, the following signs may be permitted, subject to standards and conditions in this Code:” “In addition to exempt directional signs allowed under Subsection 4.156.05 (.02) C. freestanding or ground mounted directional signs six (6) square feet or less in area and four (4) feet or less in height:

1. The signs shall be designed to match or complement the architectural design of buildings on the site;
2. The signs shall only be placed at the intersection of internal circulation drives; and
3. No more than one (1) sign shall be placed per intersection corner with no more than two (2) signs per intersection.”

Response: One directional sign aesthetically compatible to the architectural and branding design of the hotel is proposed. The proposed sign is 6'-6" in height and 16 SF in area, to be located at the intersection of internal drives. As the proposed size of the sign exceeds the requirements of this Subsection, a condition of approval will ensure the directional sign on site will not exceed four (4) feet in height or six (6) SF in area.

Site Design Review

Excessive Uniformity, Inappropriateness of Design, Etc.
Subsections 4.400 (.01) and 4.421 (.03)

E29. Review Criteria: "The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards." "Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor."

Response:

Excessive Uniformity: A variety of signs are proposed which do not create excessive uniformity.

Inappropriate or Poor Design of Signs: Signs are typical of the type of development proposed found to be appropriate throughout the City.

Lack of Proper Attention to Site Development: The appropriate professional services have been used to design the site in relation to signs

Lack of Proper Attention to Landscaping: Appropriate landscaping is placed around freestanding and monument signs.

Purposes of Objectives of Site Design Review
Subsections 4.400 (.02) and 4.421 (.03)

E30. Review Criteria: "The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards." "The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:" Listed A through J. including D. which reads "Conserve the City's natural beauty and visual character and charm by assuring that structures, signs and other improvements are properly related to their sites, and to surrounding sites and structures, with due regard to the aesthetic qualities of the natural terrain and landscaping, and that proper attention is given to exterior appearances of structures, signs and other improvements;"

Response: It is staff's professional opinion that the signs comply with the purposes and objectives of site design review, especially objective D. which specifically mentions signs. The proposed signs are of a scale and design appropriately related to the subject site and the appropriate amount of attention has been given to visual appearance.

Site Design Review-Design Standards Subsection 4.421 (.01)

E31. Review Criteria: This subsection lists the design standards for Site Design Review. Listed A through G. Only F. is applicable to this application, which reads, "Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties."

Response: There is no indication that the size, location, design, color, texture, lighting or material of the proposed signs would detract from the design of the building and the surrounding properties.

Applicability of Design Standards to Signs Subsection 4.421 (.02)

E32. Review Criteria: "The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures."

Response: Design standards have been applied to exterior signs, as applicable, see Finding E31 above.

Site Design Review-Conditions of Approval Subsection 4.421 (.05)

E33. Review Criterion: "The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code."

Response: No additional conditions of approval are recommended to ensure the proper and efficient functioning of the development in relation to signs.

Color or Materials Requirements Subsection 4.421 (.06)

E34. Review Criterion: "The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City."

Response: Staff does not recommend any additional requirements for materials or colors for the proposed signs.

Site Design Review-Procedures
Section 4.440

E35. Review Criteria: “A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:” Listed A through F.

Response: The applicant has submitted a sign plan as required by this section.



Planning Division
Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Pre-Application Meeting Date:

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

29799 SW Town Center Loop E, Wilsonville, OR 97070
Phone: 503.682.4960 Fax: 503.682.7025
Web: www.ci.wilsonville.or.us

Applicant:

Name: Dave Kimmel
Company: PDG Planning Design Group
Mailing Address: 1335 SW 66th Ave. #201
City, State, Zip: Portland, OR 97225
Phone: 503-329-5399 Fax:
E-mail: pdgplanning@comcast.net

Authorized Representative:

Name: Dave Kimmel
Company: PDG Planning Design Group
Mailing Address: 1335 SW 66th Ave. #201
City, State, Zip: Portland, OR 97225
Phone: 503-329-5399 Fax:
E-mail: pdgplanning@comcast.net

Property Owner:

Name: Ray Batra
Company: R&R Motels
Mailing Address: 9600 SW Capitol
City, State, Zip: Portland, OR 97225
Phone: 503-358-6555 Fax:
E-mail: ray@pnwpetro.com

Property Owner's Signature:

Signature: Ray Batra
Printed Name: Ray Batra Date: 4-28-17

Applicant's Signature: (if different from Property Owner)

Signature: Dave Kimmel
Printed Name: Dave Kimmel Date: 4-28-17

Site Location and Description:

Project Address if Available: 30800 SW Parkway Suite/Unit
Project Location: Intersection of SW Parkway and SW Trask
Tax Map #(s): 31W24CB Tax Lot #(s): 10201 County: Washington Clackamas

Request:

Demo existing motel and associated structures and construct new motel in its place.

Project Type: Class I Class II Class III

Residential Commercial Industrial Other

Application Type(s):

- Annexation, Final Plat, Plan Amendment, Request for Special Meeting, SROZ/SRIR Review, Type C Tree Removal Plan, Villebois SAP, Zone Map Amendment, Appeal, Major Partition, Planned Development, Request for Time Extension, Staff Interpretation, Tree Permit (B or C), Villebois PDP, Waiver(s), Comp Plan Map Amend, Minor Partition, Preliminary Plat, Signs, Stage I Master Plan, Temporary Use, Villebois FDP, Conditional Use, Parks Plan Review, Request to Modify Conditions, Site Design Review, Stage II Final Plan, Variance, Other (describe)



APR 28 2017





29799 SW Town Center Loop East
 Wilsonville OR 97070
 Phone: 503.682.4960 Fax: 503.682.7025
 Web: www.ci.wilsonville.or.us

Planning Division
 Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Pre-Application Meeting Date: _____

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

Applicant:

Name: Dave Kimmel
 Company: PDG
 Mailing Address: 1335 SW 66th Ave, #201
 City, State, Zip: Portland, OR 97225
 Phone: 503-329-5399 Fax: _____
 E-mail: pdgplanning@comcast.net

Authorized Representative:

Name: Same As Applicant
 Company: _____
 Mailing Address: _____
 City, State, Zip: _____
 Phone: _____ Fax: _____
 E-mail: _____

Property Owner:

Name: Ray Batra
 Company: R&R Motels
 Mailing Address: 9600 SW Capital
 City, State, Zip: Portland, OR 9
 Phone: 503-358-6555 Fax: _____
 E-mail: ray@pnwpetro.com

Property Owner's Signature:

[Signature]
 Printed Name: Ray Batra Date: 4-28-17

Applicant's Signature: (if different from Property Owner)

[Signature]
 Printed Name: Dave Kimmel Date: 4-28-17

Site Location and Description:

Project Address if Available: 30800 SW Parkway Suite/Unit _____
 Project Location: Intersection of SW Parkway & SW Trask
 Tax Map #(s): 31W24CB Tax Lot #(s): 10201 County: Washington Clackamas

Request:

Removal of 75 existing trees within the property. Of those, 22 trees are in poor health as reported by a certified arborist. The remaining 53 trees are in conflict with proposed site development. See Tree Plan and Landscape Plan. The development proposes to mitigate for the removed trees by planting 57 (2" cal) trees that are native and/or adaptive to the Willamette Valley region.

Project Type: Class I Class II Class III

Residential Commercial Industrial Other: _____

Application Type(s):

- Annexation
- Final Plat
- Plan Amendment
- Request for Special Meeting
- SROZ/SRIR Review
- Type C Tree Removal Plan
- Villebois SAP
- Zone Map Amendment
- Appeal
- Major Partition
- Planned Development
- Request for Time Extension
- Staff Interpretation
- Tree Permit (B or C)
- Villebois PDP
- Waiver(s)
- Comp Plan Map Amend
- Minor Partition
- Preliminary Plat
- Signs
- Stage I Master Plan
- Temporary Use
- Villebois FDP
- Conditional Use
- Parks Plan Review
- Request to Modify Conditions
- Site Design Review
- Stage II Final Plan
- Other (describe)

RECEIVED
APR 28 2017

Exhibit C1
Public Works Plan Submittal Requirements
and Other Engineering Requirements

1. All construction or improvements to public works facilities shall be in conformance to the City of Wilsonville Public Works Standards - 2015.
2. Applicant shall submit insurance requirements to the City of Wilsonville in the following amounts:

Coverage (<i>Aggregate, accept where noted</i>)	Limit
<u>Commercial General Liability:</u>	
▪ General Aggregate (per project)	\$3,000,000
▪ General Aggregate (per occurrence)	\$2,000,000
▪ Fire Damage (any one fire)	\$50,000
▪ Medical Expense (any one person)	\$10,000
<u>Business Automobile Liability Insurance:</u>	
▪ Each Occurrence	\$1,000,000
▪ Aggregate	\$2,000,000
<u>Workers Compensation Insurance</u>	\$500,000

3. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, right-of-way and easements have been obtained and Staff is notified a minimum of 24 hours in advance.
4. All public utility/improvement plans submitted for review shall be based upon a 22" x 34" format and shall be prepared in accordance with the City of Wilsonville Public Work's Standards.
5. Plans submitted for review shall meet the following general criteria:
 - a. Utility improvements that shall be maintained by the public and are not contained within a public right-of-way shall be provided a maintenance access acceptable to the City. The public utility improvements shall be centered in a minimum 15-ft. wide public easement for single utilities and a minimum 20-ft wide public easement for two parallel utilities and shall be conveyed to the City on its dedication forms.
 - b. Design of any public utility improvements shall be approved at the time of the issuance of a Public Works Permit. Private utility improvements are subject to review and approval by the City Building Department.
 - c. In the plan set for the PW Permit, existing utilities and features, and proposed new private utilities shall be shown in a lighter, grey print. Proposed public improvements shall be shown in bolder, black print.

- d. All elevations on design plans and record drawings shall be based on NAVD 88 Datum.
 - e. All proposed on and off-site public/private utility improvements shall comply with the State of Oregon and the City of Wilsonville requirements and any other applicable codes.
 - f. Design plans shall identify locations for street lighting, gas service, power lines, telephone poles, cable television, mailboxes and any other public or private utility within the general construction area.
 - g. As per City of Wilsonville Ordinance No. 615, all new gas, telephone, cable, fiber-optic and electric improvements etc. shall be installed underground. Existing overhead utilities shall be undergrounded wherever reasonably possible.
 - h. Any final site landscaping and signing shall not impede any proposed or existing driveway or interior maneuvering sight distance.
 - i. Erosion Control Plan that conforms to City of Wilsonville Ordinance No. 482.
 - j. Existing/proposed right-of-way, easements and adjacent driveways shall be identified.
 - k. All engineering plans shall be printed to PDF, combined to a single file, stamped and digitally signed by a Professional Engineer registered in the State of Oregon.
 - l. All plans submitted for review shall be in sets of a digitally signed PDF and three printed sets.
6. Submit plans in the following general format and order for all public works construction to be maintained by the City:
- a. Cover sheet
 - b. City of Wilsonville construction note sheet
 - c. General construction note sheet
 - d. Existing conditions plan.
 - e. Erosion control and tree protection plan.
 - f. Site plan. Include property line boundaries, water quality pond boundaries, sidewalk improvements, right-of-way (existing/proposed), easements (existing/proposed), and sidewalk and road connections to adjoining properties.
 - g. Grading plan, with 1-foot contours.
 - h. Composite utility plan; identify storm, sanitary, and water lines; identify storm and sanitary manholes.
 - i. Detailed plans; show plan view and either profile view or provide i.e.'s at all utility crossings; include laterals in profile view or provide table with i.e.'s at crossings; vertical scale 1"= 5', horizontal scale 1"= 20' or 1"= 30'.
 - j. Street plans.
 - k. Storm sewer/drainage plans; number all lines, manholes, catch basins, and cleanouts for easier reference
 - l. Water and sanitary sewer plans; plan; number all lines, manholes, and cleanouts for easier reference.
 - m. Detailed plan for storm water detention facility (both plan and profile views), including water quality orifice diameter and manhole rim elevations. Provide detail of inlet structure and energy dissipation device. Provide details of drain inlets, structures, and

- piping for outfall structure. Note that although storm water detention facilities are typically privately maintained they will be inspected by engineering, and the plans must be part of the Public Works Permit set.
- n. Detailed plan for water quality facility (both plan and profile views). Note that although storm water quality facilities are typically privately maintained they will be inspected by Natural Resources, and the plans must be part of the Public Works Permit set.
 - o. Composite franchise utility plan.
 - p. City of Wilsonville detail drawings.
 - q. Illumination plan.
 - r. Striping and signage plan.
 - s. Landscape plan.
7. Design engineer shall coordinate with the City in numbering the sanitary and stormwater sewer systems to reflect the City's numbering system. Video testing and sanitary manhole testing will refer to City's numbering system.
 8. The applicant shall install, operate and maintain adequate erosion control measures in conformance with the standards adopted by the City of Wilsonville Ordinance No. 482 during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed.
 9. Applicant shall work with City Engineering before disturbing any soil on the respective site. If 5 or more acres of the site will be disturbed applicant shall obtain a 1200-C permit from the Oregon Department of Environmental Quality. If 1 to less than 5 acres of the site will be disturbed a 1200-CN permit from the City of Wilsonville is required.
 10. The applicant shall be in conformance with all stormwater and flow control requirements for the proposed development per the Public Works Standards.
 11. A storm water analysis prepared by a Professional Engineer registered in the State of Oregon shall be submitted for review and approval by the City.
 12. The applicant shall be in conformance with all water quality requirements for the proposed development per the Public Works Standards. If a mechanical water quality system is used, prior to City acceptance of the project the applicant shall provide a letter from the system manufacturer stating that the system was installed per specifications and is functioning as designed.
 13. Storm water quality facilities shall have approved landscape planted and/or some other erosion control method installed and approved by the City of Wilsonville prior to streets and/or alleys being paved.
 14. The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be

maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards.

15. All survey monuments on the subject site, or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.
16. Sidewalks, crosswalks and pedestrian linkages in the public right-of-way shall be in compliance with the requirements of the U.S. Access Board.
17. No surcharging of sanitary or storm water manholes is allowed.
18. The project shall connect to an existing manhole or install a manhole at each connection point to the public storm system and sanitary sewer system.
19. A City approved energy dissipation device shall be installed at all proposed storm system outfalls. Storm outfall facilities shall be designed and constructed in conformance with the Public Works Standards.
20. The applicant shall provide a 'stamped' engineering plan and supporting information that shows the proposed street light locations meet the appropriate AASHTO lighting standards for all proposed streets and pedestrian alleyways.
21. All required pavement markings, in conformance with the Transportation Systems Plan and the Bike and Pedestrian Master Plan, shall be completed in conjunction with any conditioned street improvements.
22. Street and traffic signs shall have a hi-intensity prismatic finish meeting ASTM 4956 Spec Type 4 standards.
23. The applicant shall provide adequate sight distance at all project driveways by driveway placement or vegetation control. Specific designs to be submitted and approved by the City Engineer. Coordinate and align proposed driveways with driveways on the opposite side of the proposed project site.
24. The applicant shall provide adequate sight distance at all project street intersections, alley intersections and commercial driveways by properly designing intersection alignments, establishing set-backs, driveway placement and/or vegetation control. Coordinate and align proposed streets, alleys and commercial driveways with existing streets, alleys and

commercial driveways located on the opposite side of the proposed project site existing roadways. Specific designs shall be approved by a Professional Engineer registered in the State of Oregon. As part of project acceptance by the City the Applicant shall have the sight distance at all project intersections, alley intersections and commercial driveways verified and approved by a Professional Engineer registered in the State of Oregon, with the approval(s) submitted to the City (on City approved forms).

25. Access requirements, including sight distance, shall conform to the City's Transportation Systems Plan (TSP) or as approved by the City Engineer. Landscaping plantings shall be low enough to provide adequate sight distance at all street intersections and alley/street intersections.
26. Applicant shall design interior streets and alleys to meet specifications of Tualatin Valley Fire & Rescue and Allied Waste Management (United Disposal) for access and use of their vehicles.
27. The applicant shall provide the City with a Stormwater Maintenance and Access Easement (on City approved forms) for City inspection of those portions of the storm system to be privately maintained. Stormwater or rainwater LID facilities may be located within the public right-of-way upon approval of the City Engineer. Applicant shall maintain all LID storm water components and private conventional storm water facilities; maintenance shall transfer to the respective homeowners association when it is formed.
28. The applicant shall "loop" proposed waterlines by connecting to the existing City waterlines where applicable.
29. Applicant shall provide a minimum 6-foot Public Utility Easement on lot frontages to all public right-of-ways. An 8-foot PUE shall be provided along Collectors. A 10-ft PUE shall be provided along Minor and Major Arterials.
30. For any new public easements created with the project the Applicant shall be required to produce the specific survey exhibits establishing the easement and shall provide the City with the appropriate Easement document (on City approved forms).
31. Mylar Record Drawings:

At the completion of the installation of any required public improvements, and before a 'punch list' inspection is scheduled, the Engineer shall perform a record survey. Said survey shall be the basis for the preparation of 'record drawings' which will serve as the physical record of those changes made to the plans and/or specifications, originally approved by Staff, that occurred during construction. Using the record survey as a guide, the appropriate changes will be made to the construction plans and/or specifications and a complete revised 'set' shall be submitted. The 'set' shall consist of drawings on 3 mil. Mylar and an electronic copy in AutoCAD, current version, and a digitally signed PDF.

Exhibit C2
Natural Resources Findings & Requirements

Findings for SI1_-00__

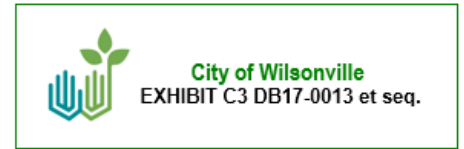
(if SRIR include related findings here)

Stormwater Management Requirements

1. Provide profiles, plan views, landscape information, and specifications for the proposed stormwater facilities consistent with the requirements of the 2015 Public Works Standards.
2. Pursuant to the 2015 Public Works Standards, the applicant shall submit a maintenance plan (including the City's stormwater maintenance and access easement) for the proposed stormwater facilities prior to approval for occupancy of the associated development.
3. Pursuant to the 2015 Public Works Standards, access shall be provided to all areas of the proposed stormwater facilities. At a minimum, at least one access shall be provided for maintenance and inspection.

Other Requirements

4. The applicant shall comply with all applicable state and federal requirements for the proposed construction activities (e.g., DEQ UIC requirements).



August 15, 2017

Jennifer Scola
Associate Planner
City of Wilsonville
29799 SW Town Center Loop East
Wilsonville, Oregon
97070

**Re: DB17-0013, Hilton Garden Inn
Tax Lot I.D: 31W24CB10201**

Jennifer,

Thank you for the opportunity to review the proposed application surrounding the above named development project. These conditions are provided in regards to DB17-0013 application. There may be more or less requirements needed based upon the final project design, however, Tualatin Valley Fire & Rescue will endorse this proposal predicated on the following criteria and conditions of approval.

FIRE APPARATUS ACCESS:

1. **FIRE APPARATUS ACCESS ROAD DISTANCE FROM BUILDINGS AND FACILITIES:** Access roads shall be within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building or facility. An approved turnaround is required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet. (OFC 503.1.1))
2. **DEAD END ROADS AND TURNAROUNDS:** Dead end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround. Diagrams can be found in the corresponding guide that is located at <http://www.tvfr.com/DocumentCenter/View/1296>. (OFC 503.2.5 & D103.1)
3. **ADDITIONAL ACCESS ROADS – COMMERCIAL/INDUSTRIAL HEIGHT:** Buildings exceeding 30 feet in height or three stories in height shall have at least two separate means of fire apparatus access. (D104.1)
4. **AERIAL FIRE APPARATUS ROADS:** Buildings with a vertical distance between the grade plane and the highest roof surface that exceeds 30 feet in height shall be provided with a fire apparatus access road constructed for use by aerial apparatus with an unobstructed driving surface width of not less than 26 feet. For the purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of the parapet walls, whichever is greater. Any portion of the building may be used for this measurement, provided that it is accessible to firefighters and is capable of supporting ground ladder placement. (OFC D105.1, D105.2)
5. **AERIAL APPARATUS OPERATIONS:** At least one of the required aerial access routes shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial access road is positioned shall be approved by the Fire

Marshal. Overhead utility and power lines shall not be located over the aerial access road or between the aerial access road and the building. (D105.3, D105.4)

6. **MULTIPLE ACCESS ROADS SEPARATION:** Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the area to be served (as identified by the Fire Marshal), measured in a straight line between accesses. (OFC D104.3)
7. **FIRE APPARATUS ACCESS ROAD WIDTH AND VERTICAL CLEARANCE:** Fire apparatus access roads shall have an unobstructed driving surface width of not less than 20 feet (26 feet adjacent to fire hydrants (OFC D103.1)) and an unobstructed vertical clearance of not less than 13 feet 6 inches. (OFC 503.2.1 & D103.1)
8. **NO PARKING SIGNS:** Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "No Parking" signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Signs shall read "NO PARKING - FIRE LANE" and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (OFC D103.6)
9. **NO PARKING:** Parking on emergency access roads shall be as follows (OFC D103.6.1-2):
 1. 20-26 feet road width – no parking on either side of roadway
 2. 26-32 feet road width – parking is allowed on one side
 3. Greater than 32 feet road width – parking is not restricted**Note:** For specific widths and parking allowances, contact the local municipality.
10. **PAINTED CURBS:** Where required, fire apparatus access roadway curbs shall be painted red (or as approved) and marked "NO PARKING FIRE LANE" at 25 foot intervals. Lettering shall have a stroke of not less than one inch wide by six inches high. Lettering shall be white on red background (or as approved). (OFC 503.3)
11. **FIRE APPARATUS ACCESS ROADS WITH FIRE HYDRANTS:** Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet and shall extend 20 feet before and after the point of the hydrant. (OFC D103.1)
12. **TURNING RADIUS:** The inside turning radius and outside turning radius shall not be less than 28 feet and 48 feet respectively, measured from the same center point. (OFC 503.2.4 & D103.3)
13. **ANGLE OF APPROACH/GRADE FOR TURNAROUNDS:** Turnarounds shall be as flat as possible and have a maximum of 5% grade with the exception of crowning for water run-off. (OFC 503.2.7 & D103.2)
14. **ANGLE OF APPROACH/GRADE FOR INTERSECTIONS:** Intersections shall be level (maximum 5%) with the exception of crowning for water run-off. (OFC 503.2.7 & D103.2)
15. **AERIAL APPARATUS OPERATING GRADES:** Portions of aerial apparatus roads that will be used for aerial operations shall be as flat as possible. Front to rear and side to side maximum slope shall not exceed 10%.
16. **ACCESS DURING CONSTRUCTION:** Approved fire apparatus access roadways shall be installed and operational prior to any combustible construction or storage of combustible materials on the site. Temporary address signage shall also be provided during construction. (OFC 3309 and 3310.1)
17. **TRAFFIC CALMING DEVICES:** Shall be prohibited on fire access routes unless approved by the Fire Marshal. (OFC 503.4.1).

FIRE HYDRANTS:

18. **FIRE HYDRANTS – COMMERCIAL BUILDINGS:** Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided. (OFC 507.5.1)
- This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system.
 - The number and distribution of fire hydrants required for commercial structure(s) is based on Table C105.1, following any fire-flow reductions allowed by section B105.3.1. Additional fire hydrants may be required due to spacing and/or section 507.5 of the Oregon Fire Code.
19. **FIRE HYDRANT(S) PLACEMENT:** (OFC C104)
- Existing hydrants in the area may be used to meet the required number of hydrants as approved. Hydrants that are up to 600 feet away from the nearest point of a subject building that is protected with fire sprinklers may contribute to the required number of hydrants. (OFC 507.5.1)
 - Hydrants that are separated from the subject building by railroad tracks shall not contribute to the required number of hydrants unless approved by the Fire Marshal.
 - Hydrants that are separated from the subject building by divided highways or freeways shall not contribute to the required number of hydrants. Heavily traveled collector streets may be considered when approved by the Fire Marshal.
 - Hydrants that are accessible only by a bridge shall be acceptable to contribute to the required number of hydrants only if approved by the Fire Marshal.
20. **FIRE HYDRANT DISTANCE FROM AN ACCESS ROAD:** Fire hydrants shall be located not more than 15 feet from an approved fire apparatus access roadway unless approved by the Fire Marshal. (OFC C102.1)
21. **REFLECTIVE HYDRANT MARKERS:** Fire hydrant locations shall be identified by the installation of blue reflective markers. They shall be located adjacent and to the side of the center line of the access roadway that the fire hydrant is located on. In the case that there is no center line, then assume a center line and place the reflectors accordingly. (OFC 507)
22. **PHYSICAL PROTECTION:** Where fire hydrants are subject to impact by a motor vehicle, guard posts, bollards or other approved means of protection shall be provided. (OFC 507.5.6 & OFC 312)
23. **CLEAR SPACE AROUND FIRE HYDRANTS:** A 3 foot clear space shall be provided around the circumference of fire hydrants. (OFC 507.5.5)
24. **FIRE DEPARTMENT CONNECTION (FDC) LOCATIONS:** FDCs shall be located within 100 feet of a fire hydrant (or as approved). Hydrants and FDC's shall be located on the same side of the fire apparatus access roadway or drive aisle, fully visible, and recognizable from the street or nearest point of the fire department vehicle access or as otherwise approved. (OFC 912.2.1 & NFPA 13)
- Fire department connections (FDCs) shall normally be located remotely and outside of the fall-line of the building when required. FDCs may be mounted on the building they serve, when approved.
 - FDCs shall be plumbed on the system side of the check valve when sprinklers are served by underground lines also serving private fire hydrants.

BUILDING ACCESS AND FIRE SERVICE FEATURES

25. **EMERGENCY RESPONDER RADIO COVERAGE:** In new buildings where the design reduces the level of radio coverage for public safety communications systems below minimum performance levels, a distributed antenna system, signal booster, or other method approved by TVF&R and Washington County Consolidated Communications Agency shall be provided. (OSSC 915.1, OFC 510.1, and Appendix F)
<http://www.tvfr.com/DocumentCenter/View/1296>.

- a. Emergency responder radio system testing and/or system installation is required for this building. Please contact me (using my contact info below) for further information including an alternate means of compliance that is available. If the alternate method is preferred, it must be requested from TVF&R prior to issuance of building permit.
26. **KNOX BOX:** A Knox Box for building access may be required for structures and gates. See Appendix B for further information and detail on required installations. Order via www.tvfr.com or contact TVF&R for assistance and instructions regarding installation and placement. (OFC 506.1)
27. **FIRE PROTECTION EQUIPMENT IDENTIFICATION:** Rooms containing controls to fire suppression and detection equipment shall be identified as "Fire Control Room." Signage shall have letters with a minimum of 4 inches high with a minimum stroke width of 1/2 inch, and be plainly legible, and contrast with its background. (OFC 509.1)
28. **PREMISES IDENTIFICATION:** New and existing buildings shall have approved address numbers; building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property, including monument signs. These numbers shall contrast with their background. Numbers shall be a minimum of 4 inches high with a minimum stroke width of 1/2 inch. (OFC 505.1)

If you have questions or need further clarification, please feel free to contact me at 503-259-1510.

Sincerely,

Jason Arn

Jason Arn
Deputy Fire Marshal II

Email jason.arn@tvfr.com

Cc: file

<http://www.tvfr.com/DocumentCenter/View/1296>



From: [CAINES Jeff](#)
To: [Scola Jennifer](#)
Subject: Oregon Dept. of Aviation - Comments: Wilsonville Development Review Team Mailing (DB17-0013 et seq Hilton Garden Inn)
Date: Friday, August 04, 2017 8:28:17 AM
Attachments: [image003.png](#)
[DB17-0013 Hilton Garden Inn DRT Notice 8.3.17.pdf](#)

Jennifer:

Thank you for allowing ODA to comment on the proposed Hilton Garden Inn to be located at the existing Quality Inn location. ODA has reviewed the proposal and have the following comments:

The site is approximately 3 miles north of the Aurora State airport. The estimated elevation of the site is 160 feet AMSL and the Aurora State airport is listed at 200 feet AMSL.

Due to the existing building being replaced, development between this site and the airport as well as the elevation difference ODA finds that this project will not pose a hazard to air navigation. Therefore, no FAA 7460-1 will be required by ODA.

Thank you again. Please feel free to contact me if you or the applicant have any questions.

Jeff

[Jeff Caines, AICP](#)
Oregon Department of Aviation
Aviation Planner / SCIP Coordinator
3040 25th St. SE | Salem, OR 97302
Office: [503.378.2529](tel:503.378.2529)
Cell / Text: [503.507.6965](tel:503.507.6965)
Email: Jeff.Caines@aviation.state.or.us

From: White, Shelley [<mailto:swhite@ci.wilsonville.or.us>]
Sent: Thursday, August 03, 2017 4:05 PM
To: Andrew Schafer (Andrew.Schafer@pgn.com); Stone, Andy; Gray, Arnie; Jacobson, Barbara; Ben Baldwin (DevelopmentReview@trimet.org); EBELING Robert W; Brian Harper (Brian.Harper@oregonmetro.gov); Brian Kelley (Brian.Kelley@nwnatural.com); Stevenson, Brian; Cosgrove, Bryan; Neamtzu, Chris; Cindy Crowder (crowderc@wlwv.k12.or.us); Carlson, Dan; Stark, Dan; Pauly, Daniel; Kerber, Delora; Walters, Don; Brashear, Dwight; Loomis, Eric; Frank Lonergan ; Parent, Gail; PECK Heather; James Rhodes (JRhodes@clackamas.us); Jason Arn (Jason.Arn@tvfr.com); LaBrie, Jason; Stoller, Kate; Dr. Kathy Ludwig (ludwigk@wlwv.k12.or.us); Kenneth Parris (kenneth_parris@cable.comcast.com); Rappold, Kerry; Lance Cheeley (Lance.Cheeley@nwnatural.com); Ottenad, Mark; Baker, Matt; McCarty, Mike; Ward, Mike; Kraushaar, Nancy; Duke, Pat; Watson, Randy; Region 1 DEVREV Applications; Rich Girard ; Simonton, Scott; Adams, Steve; Tiffany Ritchey (tiffany.ritchey@pgn.com); Woodley, Tim; Blankenship, Tod
Subject: Wilsonville Development Review Team Mailing (DB17-0013 et seq Hilton Garden Inn)

Development Review Team,

Please find the attached Development Review Team mailing for your review:

DB17-0013 et seq Hilton Garden Inn

Please note that written comments/conditions are due to Jennifer Scola by 4:00 pm on Thursday, August 17th, 2017.

Thank you,

Shelley White
Administrative Assistant
City of Wilsonville

503.570.1575
swhite@ci.wilsonville.or.us
www.ci.wilsonville.or.us



29799 SW Town Center Loop East, Wilsonville, OR 97070

Disclosure Notice: Messages to and from this e-mail address may be subject to the Oregon Public Records Law.

PDG Planning Design Group
1335 SW 66th Ave. #201
Portland, Oregon 97225
PH: 503-329-5399
Fax: 503-327-8456
Email: pdgplanning@comcast.net

April 26, 2017

City of Wilsonville
29799 SW Town Center Loop E
Wilsonville, OR 97070

Proposal: Demo existing Quality Inn Motel and Rebuild with New Hilton Garden Motel

Site Address: Quality Inn
30800 SW Parkway Ave.
31W24CB TL 10201

Site Information: Zoning: PDC
 Lot Size: 2.37 Acres (103,416 SF)

Project Summary:

The applicant is proposing to demolish the existing 68 unit motel and associated services, such as pool/spa, breakfast service for guests and meeting space for guests. The applicant proposes to replace with a new 118 unit motel with breakfast service and bar for guests, meeting space and pool/spa. All services are provided for guests only and not available to rent for outside groups. The applicant is not proposing to alter the existing driveway or add any additional accesses to the property.

Code Criteria:

Section 4.421. Criteria and Application of Design Standards.

(.01)

The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards. (Even in the Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)



A. Preservation of Landscape. The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soils removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

The applicant is proposing to redevelop the entire site. The existing structures cannot meet the current building codes to expand the motel from 68 rooms to the proposed 118 room motel. Other development constraints including appropriate storm water treatment, parking requirements, emergency access for the Fire Department etc., require that the existing landscaping be mostly redesigned. The applicant has tried to retain as many trees and other natural plant materials as possible.

B. Relation of Proposed Buildings to Environment. Proposed structures shall be located and designed to assure harmony with the natural environment, including protection of steep slopes, vegetation and other naturally sensitive areas for wildlife habitat and shall provide proper buffering from less intensive uses in accordance with Sections 4.171 and 4.139 and 4.139.5. The achievement of such relationship may include the enclosure of space in conjunction with other existing buildings or other proposed buildings and the creation of focal points with respect to avenues of approach, street access or relationships to natural features such as vegetation or topography.

The applicant is proposing to demolish the existing buildings and rebuild the motel as a single multi-story building with all amenities contained within the motel. The new motel will have 118 rooms, a breakfast/bar area for guests uses and a conference center for guests to reserve. The existing pool will be relocated to the interior of the building. The existing separated conference center will also be relocated to the new building. The proposed new structure will be located in approximately the same place as the current motel buildings.

C. Drives, Parking and Circulation. With respect to vehicular and pedestrian circulation, including walkways, interior drives and parking, special attention shall be given to location and number of access points, general interior circulation, separation of pedestrian and vehicular traffic, and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the design of proposed buildings and structures and the neighboring properties.

The existing development has a single access point with a shared secondary internal access with the adjacent development. The applicant is proposing to leave the existing public access in the same location.

On site circulation will be modified to provide parking on all sides of the building. This will provide adequate parking for guests and also provide better access for emergency vehicles.

D. Surface Water Drainage. Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties of the public storm drainage system.

The site will continue to drain to the west and away from adjacent properties. The applicant will also be upgrading the storm water facilities to meet the current standards.

E. Utility Service. Any utility installations above ground shall be located so as to have a harmonious relation to neighboring properties and site. The proposed method of sanitary and storm sewage disposal from all buildings shall be indicated.

The existing utility services are all underground and the project will reconnect to the existing facilities.

F. Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.

The applicant is reviewing the new sign designs that will be required by Hilton and will propose a new pylon sign and wall signs. Once designed the applicant will submit a complete sign matrix to show compliance with the sign standards for allowed sizes, locations and design approval.

G. Special Features. Exposed storage areas, exposed machinery installations, surface areas, truck loading areas, utility buildings and structures and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall be required to prevent their being incongruous with the existing or contemplated environment and its surrounding properties. Standards for screening and buffering are contained in Section 4.176.

The project is not proposing any changes that would apply to this section.

(.02) The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.

The applicant is not proposing to deviate from the above standards.

(.03) The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.

The applicant understands this criteria.

Section 4.156. Sign Regulations.

(.02) Application For Sign Permits.

A. Submittals. Every request for a sign approval shall be made on the application form, which shall be provided by the City Planning Department and shall be accompanied by additional information and such fees as may be required by the City.

B. Review Processes.

- 1. The Planning Director shall have authority over the administration, interpretation, and enforcement of the provisions of this Section, subject to appeal as provided in Section 4.022. Pursuant to a Class I Administrative Review procedure, the Planning Director may approve, approve with conditions, or deny applications for sign permits, except as provided in this Section. The Planning Director's authority to approve sign permits shall be limited to reviewing and acting upon temporary use sign permits, permits for replacement of existing signs, minor changes to approved sign permits, and signs that have already received preliminary approval as part of a master sign plan, or in the Village zone, as part of a master signage and Wayfinding plan. (Amended by Ord 557, adopted 9/5/03).**
- 2. Any decision for approval of a sign proposal shall include written findings addressing the following criteria:**
 - a. The proposed signage complies with the specific objectives in subsection 4.156(.01) of this Code;**

The applicant is proposing a new signage packet with the new development. All of the existing signage will be removed and replaced with the following: 2 new site identification signs and 1 new on-site directional sign and two new wall signs (one on the west facing wall and one on the south facing wall). Changes to the signage are compatible with existing signage and meet the specific objectives in subsection 4.156(01) of this code.

- b. The proposed signage is compatible with developments or uses permitted in the zone in terms of design, materials used, color schemes, proportionality, and location, so that it does not interfere with or detract from the visual appearance of adjacent development;**

The proposed signage is compatible with other signs in this commercial area. Signs in the commercial areas adjacent to the subject property are of similar size, materials and lighting components.

- c. The proposed signage will not create a nuisance or result in a significant reduction in the value or usefulness of adjacent properties;**

The proposed signage will not create a nuisance or result in a reduction or value of adjacent properties.

d.If the proposed signage is to be temporary, the length of time for which it is permitted shall be reasonable in terms of the purpose and nature of the signs that are proposed, but not to exceed one (1) year from the date of approval;

The proposed changes are not temporary in nature.

e.If the application involves a Variance, it shall be subject to the standards and criteria listed in Section 4.196; and

The applicant is not requesting a variance.

f. All of the relevant application filing requirements of Chapter 4 have been met.

All of the relevant application filing requirements have been met.

4.156 (.08)

Sign Permit Requirements In PDC And PDI Zones. In implementing the permanent sign footage per lot allowed by the provisions of Sign Table 6, the following standards and conditions shall apply to all signs in PDC and PDI zones, other than the Town Center area:

A. Freestanding Signs

1. One freestanding sign is allowed for the first two-hundred (200) linear feet of site frontage. One additional freestanding sign may be added for through lots having at least two-hundred (200) feet of frontage on one street and one-hundred (100) feet on the other street.

See attached Sign Matrix for complete identification of all proposed signs.

The maximum height of a freestanding sign shall be twenty (20) feet. If there is a building on the site, the maximum height shall be twenty (20) feet above the average grade of the building footprint.

The proposed freestanding sign along the Parkway frontage is 20' in overall height. The proposed sign along the Track frontage is 5' 2" overall height.

3. Pole placement shall be installed in a vertical position (see Figure 16: Sign Position).

Both signs poles are installed in a vertical position.

4. **Freestanding signs shall not extend into or above public rights-of-way.**

The signs do not extend into or above public rights-of-way.

5. **Street side setbacks for freestanding signs may be reduced to ten (10) feet without requiring a waiver or variance.**

Both proposed freestanding signs are located 10' from the property line to meet this requirement.

B. Signs on Buildings 1. Total area of building signs shall be determined as follows:

a. **Square feet of all building signs shall not exceed the longest side of the largest building (i.e., one square foot of sign area for each linear foot of building) occupied by the use advertised, up to a maximum of two- hundred (200) square feet, whichever amount is less, except as provided in “b” and “c” below. The length of building is to be measured at the building line.**

The building is approximately 171 lineal feet. The wall sign on the west elevation is 51.5 SF, and the wall sign on the south elevation is 47 square feet.

b. **The two-hundred (200) square foot maximum noted in “a,” above, shall be increased by twenty (20) percent to allow for building signs at separate building entrances; or**

The applicant is proposing to demolish the existing building and reconstruct a new structure in its place. The new signs will be internally illuminated channel letters with a total square footage of 98.5 square feet. A 20% increase in building signage would be allowed, since each building has a separate entrance and different orientation.

c. **The two-hundred (200) square foot maximum noted in “a,” above, shall be increased by fifty (50) percent to allow for building signs at separate entrances that are located at least fifty (50) feet apart or on different sides of the building.**

The applicant is not requesting an additional allowance.

2. **Types of signs permitted on buildings include wall flat, fascia, projecting, marquee and awning signs. Roof-top signs are prohibited.**

The proposed signs are wall flat signs. No roof-top signs exist or are proposed.

Section 4.116. Standards Applying To Commercial Developments In Any Zone. Any commercial use shall be subject to the applicable provisions of this Code and to the following:

(.10) Commercial developments generally.

- A. No structure shall be erected closer than the right-of-way line then existing or the officially planned right-of-way of any public, county, or state road.**

The proposed new motel will not be located in a manner to impact existing of officially planned right-of-ways.

- B. Minimum Front Yard Setback:** None required except when front yard abuts a more restrictive district. When front yard abuts a more restrictive district, setbacks shall be the same as the abutting district.

The applicant is proposing setback to accommodate vehicular parking and circulation.

- C. Minimum Rear Yard Setback:** None required except when rear yard abuts a more restrictive district. When rear yard abuts a more restrictive district, setbacks shall be the same as for the abutting district.

The applicant is proposing setback to accommodate vehicular parking and circulation.

- D. Minimum Side Yard Setback:** None required except when side yard abuts a more restrictive district. When side yard abuts a more restrictive district, setbacks shall be one and one-half (1 1/2) times the setback required for the abutting district.

The applicant is proposing setback to accommodate vehicular parking and circulation.

- E. Maximum Building Height:** Thirty-five (35) feet, unless taller buildings are specifically allowed in the zone.

The applicant is requesting a waiver to this standard to allow for a 51' average building height and 58' to provide stairwell penthouses for fire and life safety.

F. Minimum Lot Size: No limitation, save and except as may otherwise be affected by other provisions of this Code.

The existing property is 2.43 acres and will provide adequate size for the proposed development.

G. Maximum Lot Coverage: No limitation, save and except as may otherwise be affected by other provisions of this Code.

The applicant is proposing to meet all lot coverage requirements for parking, landscaping and other development standards.

H. Minimum Street Frontage: No limitation, save and except as may be necessary to provide minimum access requirements.

See section (.11) below for the requirements for a motel development.

Section 4.116 Standards Applying to Commercial Development in Any Zone: (.11) Hotels or Motels.

A. Minimum Lot Size: One thousand (1,000) square feet for each unit.

The applicant is requesting a waiver to this standard for greater density. The existing property is 103,416 SF, allowing for 103 units and the applicant is proposing 118 units.

B. Minimum Street Frontage: One hundred (100) feet.

The existing property has street frontage on two sides. SW Parkway frontage is 308' and SW Memorial is 340'. The proposed development meets this requirement.

C. Front Yard Setback: Thirty (30) feet, unless located in the Old Town overlay zone, in which case the standards of the overlay zone shall apply. Structures on corner lots shall observe the minimum setback on both streets or tracts with a private drive. [amended by Ord. 682, 9/9/10]

D. Minimum Rear Yard Setback: Thirty (30) feet.

E. Minimum Side Yard Setback: Twenty-four (24) feet.

The proposed development exceeds the required setbacks for all structures.

Section 4.199.50 Submittal Requirements for Outdoor Lighting:

This project will utilize the Prescriptive Option as described in Section 4.199.40.01 B and Table 7. All lighting will comply with Oregon Energy Efficiency Specialty Code, Exterior Lighting and calculations demonstrating compliance will be provided with the building permit submission. Each lighting zone will be controlled with a fully programmable time-based lighting control system that will initiate operation at dusk. With the 24 hour operation as a hotel, the parking lot lighting will be fully operational

from dusk to dawn. The courtyard lighting will be extinguished at 11pm which is one hour after the end of Restaurant and Bar Service hours. See drawings L2.01 LANDSCAPE PLAN and E1.00 SITE PHOTOMETRIC PLAN included in the SITE DESIGN REVIEW SET as well as the fixture cut sheets.

Waivers Requested:

The applicant is requesting two waivers to the standards. Section 4.118 of the Wilsonville Development Code provides the following:

(.03) Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may:

A. Waive the following typical development standards:

- 3. height and yard requirements;**
- 4. lot coverage;**
- 8. height of buildings other than signs;**

This project requests a waiver above the maximum building height of 35 feet as required by Section 4.116.10 E, and to the maximum lot coverage requirement for hotels. Section 4.166 limits lot coverage to 1 unit per 1,000 square feet of site. A waiver to increase this to 1.15 units per acre (a total of 103 to 118 units) is proposed.

Height

Section 4.140.01 allows the Development Review Board to adjust building heights in cases where the result meets the intent of the Comprehensive Plan and to accommodate changes in the economic climate. Approval of these two waivers will result in a project that is in keeping with the character, scale and design quality of Wilsonville, while providing a “four-star” hotel amenity that is currently not found in the City.

The height waiver is based on several factors related to “changes in the economic climate” referred to in Section 4.140.1. The allowed height of 35-feet essentially limits development to a 3-story building. Minimum floor-to-floor distances are 9-feet (including structure) and are typically 10-12 feet. Accommodating structural and mechanical systems for a hotel building requires at least 10-12 feet. Four-star hotel brands (Hilton, Marriot, etc.) typically require a minimum of a four-story building from an economic and quality perception perspective. A minimum number of rooms, and therefore a minimum building size and number of building stories, is typically needed to make the food service, meeting spaces and other amenities viable. The economics of the hospitality industry make this waiver necessary.

The proposed development includes several features intended to mitigate any impact of the additional building height:

1. Existing 25-foot tall trees along SW Parkway are in a 30-foot wide right-of-way landscaping strip (this strip is wider than usual because of ground slope). These trees make up the foreground of the primary views of the building from SW Parkway and Interstate 5. They provide a second “layer” to the primary screening of the proposed landscaping trees on the property. These multiple layers lower the scale of the taller building and soften the façade.
2. The proposed project features more landscaping – 22% of the site – than Code requires. This additional landscaping softens the impact of an otherwise large building.
3. Primarily viewed from Interstate 5 northbound, the building will be scaled by the tall trees behind it. Existing Douglas Fir trees, several of which are close to 100-foot tall, are being carefully preserved.
4. The proposed patterning of the siding and windows have been carefully sized to bring a “Wilsonville” scale to the building, so the building will not seem oversized for the location.
5. The additional building height provides integral screening for mechanical equipment, rather than stand-alone equipment screens perched on top of the building’s roof. This taller parapet also provides for variation where the building meets the sky.
6. As a gateway to Wilsonville, a more prominent building is appropriate.

Density

The original intent of this limit/requirement is unclear to most people, as discussed with planning staff. As stated earlier, a minimum number of rooms, is needed to make the food service, meeting spaces and other amenities viable. The economics of the hospitality industry, and specifically a four-star facility, make this waiver necessary. The increase in units does not affect the request for additional building height.

The proposed development includes several features intended to mitigate any impact of the additional units per acre:

1. Additional parking above the minimum is provided to accommodate the additional units.
2. The proposed project features more landscaping – 22% of the site – than Code requires. This additional landscaping softens the impact of a larger building.

Architectural Design

Architecturally, the proposed design balances strong design elements of the Hilton Brand standard with Wilsonville’s northwest style. We began by carefully considering the context of the site. Recent developments in Wilsonville include a variety of transitional styles with varied building tops, solid, durable materials and northwest-inspired colors. Most buildings invoke some elements or elements that evoke a residential connection.

We selected a variety of materials and colors for the proposed building to reflect the sophisticated yet unpretentious style of Wilsonville:

1. Painted cement fiber board panel siding is proposed, providing a crisp, sophisticated look that will weather well and maintain a quality look for many years. Fiber cement is sustainable due to its durable nature. These virtually maintenance free materials combined with the ventilated, insulated rain screen construction contribute to increased heating and cooling efficiency. These proposed materials will provide a contemporary – yet compatible – look within the context of other recent developments in Wilsonville.
2. Three colors are proposed, complementing each other with a professional-looking palette that provides coordinated variation. These colors include the cool blue of northwest rivers, warm grey of native basalt stone and mountains, and crisp white of the clouds and snow-capped Cascade Mountains.
3. Light-color brick provides a solid “base” to the building, a quality material that is very durable and requires minimal maintenance.

Summary:

The applicant is proposing to demolish the existing motel and construct a new four story Hilton Garden Inn motel in its place. The new motel will have 108 rooms and all modern facilities for its guests. The applicant has attempted to meet all requirements of the development code in the process of redeveloping a 30 plus year old facility. We believe this new motel will be a substantial improvement and provide a much improved hospitality environment for the Wilsonville community and that this application should be approved.

Sincerely,

David P. Kimmel

Architectural Narrative
By Carleton Hart Architecture
Hilton Garden Inn - Wilsonville, OR
May 31, 2017

Architecturally, the proposed design balances strong design elements of the Hilton Brand standard with Wilsonville's northwest style. We began by carefully considering the context of the site. Recent developments in Wilsonville include a variety of transitional styles with varied building tops, solid, durable materials and northwest-inspired colors. Most buildings invoke some elements or elements that evoke a residential connection.

Materials

We selected a variety of materials and colors for the proposed building, reflecting the sophisticated yet unpretentious style of Wilsonville.

Painted cement fiber board panel siding is proposed, providing a crisp, sophisticated look that will weather well and maintain a quality look for many years. Fiber cement is sustainable due to its durable nature. These virtually maintenance free materials combined with the ventilated, insulated rain screen construction contribute to increased heating and cooling efficiency. These proposed materials will provide a contemporary - yet compatible - look within the context of other recent developments in Wilsonville. Three colors are proposed, complementing each other with a professional-looking palette that provides coordinated variation. These colors include the cool blue of northwest rivers, warm grey of native basalt stone and mountains, and crisp white of the clouds and snow-capped Cascade Mountains.

Light-color brick provides a solid "base" to the building, a quality material that is very durable and requires minimal maintenance.

Height

As a gateway to Wilsonville, the taller and more prominent building proposed is appropriate and not out of context. Primarily viewed from Interstate 5 northbound, the building will be scaled by the tall trees behind it, and the proposed landscaping will soften the eye's transition up the building façade. The scale of the patterning of the cement board panels, the welcoming porte-cochere and the scale of the openings were carefully sized to be of a residential scale.

The additional building height is requested to meet the functional needs of the hotel. Specifically, the Code limit of 35-feet would restrict the floor-to-floor height of this project to less than 8-feet, which is not practical when accommodating structural and mechanical systems. In addition, Hilton's branding standards call for a minimum first floor lobby height of about 12-feet, which would essentially limit this to a three-story building which is not economically feasible. A short, three-story building will not accommodate a destination-type hotel that Wilsonville deserves.

The additional height also provides screening for mechanical equipment that is integral with the building, rather than a stand-alone equipment screen perched on top of the building's roof. This taller parapet allows for some variation where the building meets the sky, as well as screening for rooftop units in an integral way.

End



Waiver Application Narrative
Hilton Garden Inn – Wilsonville, OR
May 31, 2017
Rev June 14, 2017

This project requests a waiver above the maximum building height of 35 feet as required by Section 4.116.10 E, and to the maximum lot coverage requirement for hotels. Section 4.166 limits lot coverage to 1 unit per 1,000 square feet of site. A waiver to increase this to 1.15 units per acre (a total of 103 to 118 units) is proposed.

Height

Section 4.140.01 allows the Development Review Board to adjust building heights in cases where the result meets the intent of the Comprehensive Plan and to accommodate changes in the economic climate. Approval of these two waivers will result in a project that is in keeping with the character, scale and design quality of Wilsonville, while providing a “four-star” hotel amenity that is currently not found in the City.

The height waiver is based on several factors related to “changes in the economic climate” referred to in Section 4.140.1. The allowed height of 35-feet essentially limits development to a 3-story building. Minimum floor-to-floor distances are 9-feet (including structure) and are typically 10-12 feet. Accommodating structural and mechanical systems for a hotel building requires at least 10-12 feet. Four-star hotel brands (Hilton, Marriot, etc.) typically require a minimum of a four-story building from an economic and quality perception perspective. A minimum number of rooms, and therefore a minimum building size and number of building stories, is typically needed to make the food service, meeting spaces and other amenities viable. The economics of the hospitality industry make this waiver necessary.

The proposed development includes several features intended to mitigate any impact of the additional building height:

1. Existing 25-foot tall trees along SW Parkway are in a 30-foot wide right-of-way landscaping strip (this strip is wider than usual because of ground slope). These trees make up the foreground of the primary views of the building from SW Parkway and Interstate 5. They provide a second “layer” to the primary screening of the proposed landscaping trees on the property. These multiple layers lower the scale of the taller building and soften the façade.
2. The proposed project features more landscaping – 22% of the site – than Code requires. This additional landscaping softens the impact of an otherwise large building.
3. Primarily viewed from Interstate 5 northbound, the building will be scaled by the tall trees behind it. Existing Douglas Fir trees, several of which are close to 100-feet tall, are being carefully preserved.
4. The proposed patterning of the siding and windows have been carefully sized to bring a “Wilsonville” scale to the building, so the building will not seem oversized for the location.
5. The additional building height provides integral screening for mechanical equipment, rather than stand-alone equipment screens perched on top of the building’s roof. This taller parapet also provides for variation where the building meets the sky.
6. As a gateway to Wilsonville, a more prominent building is appropriate.

Density

The original intent of this limit/requirement is unclear to most people, as discussed with planning staff. As stated earlier, a minimum number of rooms, is needed to make the food service, meeting spaces and other amenities viable. The economics of the hospitality industry, and specifically a four-star facility, make this waiver necessary. The increase in units does not affect the request for additional building height.

The proposed development includes several features intended to mitigate any impact of the additional units per acre:

1. Additional parking above the minimum is provided to accommodate the additional units.
2. The proposed project features more landscaping – 22% of the site – than Code requires. This additional landscaping softens the impact of a larger building.

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Architecturally, the proposed design balances strong design elements of the Hilton Brand standard with Wilsonville’s northwest style. We began by carefully considering the context of the site. Recent developments in Wilsonville include a variety of transitional styles with varied building tops, solid, durable materials and northwest-inspired colors. Most buildings invoke some elements or elements that evoke a residential connection.

We selected a variety of materials and colors for the proposed building to reflect the sophisticated yet unpretentious style of Wilsonville:

1. Painted cement fiber board panel siding is proposed, providing a crisp, sophisticated look that will weather well and maintain a quality look for many years. Fiber cement is sustainable due to its durable nature. These virtually maintenance free materials combined with the ventilated, insulated rain screen construction contribute to increased heating and cooling efficiency. These proposed materials will provide a contemporary – yet compatible – look within the context of other recent developments in Wilsonville.
2. Three colors are proposed, complementing each other with a professional-looking palette that provides coordinated variation. These colors include the cool blue of northwest rivers, warm grey of native basalt stone and mountains, and crisp white of the clouds and snow-capped Cascade Mountains.
3. Light-color brick provides a solid “base” to the building, a quality material that is very durable and requires minimal maintenance.

End

Sign Matrix
Hilton Garden Inn
30800 SW Parkway

Proposed Signs	Area Each Sign (SF)	Quantity	Area Total (SF)	Previously Approved
Parkway Freestanding Sign	58 SF	1	58 SF	No
Trask Freestanding Sign	22.75 SF	1	22.75	No
Directional Sign	16 SF	1	16 SF	No
West Facing Wall Sign	51.5 SF	1	51.5 SF	No
South Facing Wall Sign	47 SF	1	47 SF	No
Totals		5	195.25 SF	

RECEIVED
APR 28 2017

From: pdgplanning@comcast.net
To: [Scola, Jennifer](#)
Subject: Hilton Garden Inn
Date: Wednesday, June 07, 2017 12:54:48 PM

Jenn,
Is this what you are looking or regarding the site lighting? See you tomorrow at 2PM.
Dave

In response to Section 4.199.50 Submittal Requirements for Outdoor Lighting:

This project will utilize the Prescriptive Option as described in Section 4.199.40.01 B and Table 7. All lighting will comply with Oregon Energy Efficiency Specialty Code, Exterior Lighting and calculations demonstrating compliance will be provided with the building permit submission. Each lighting zone will be controlled with a fully programmable time-based lighting control system that will initiate operation at dusk. With the 24 hour operation as a hotel, the parking lot lighting will be fully operational from dusk to dawn. The courtyard lighting will be extinguished at 11pm which is one hour after the end of Restaurant and Bar Service hours. See drawings L2.01 LANDSCAPE PLAN and E1.00 SITE PHOTOMETRIC PLAN included in the SITE DESIGN REVIEW SET as well as the fixture cut sheets.



D-Series Size 0 LED Area Luminaire



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

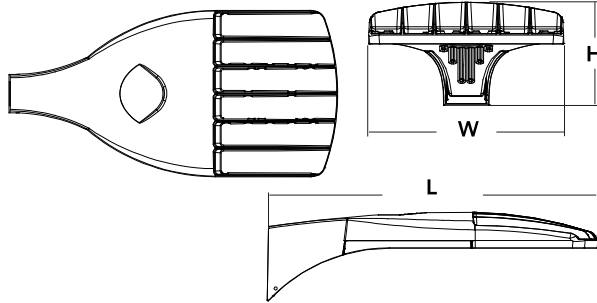
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	0.95 ft ² (.09 m ²)
Length:	26" (66.0 cm)
Width:	13" (33.0 cm)
Height:	7" (17.8 cm)
Weight (max):	16 lbs (7.25 kg)



Ordering Information

EXAMPLE: DSX0 LED 40C 1000 40K T3M MVOLT SPA DDBXD

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics 20C 20 LEDs (one engine) 40C 40 LEDs (two engines) Rotated optics¹ 30C 30 LEDs (one engine)	530 530 mA 700 700 mA 1000 1000 mA (1 A) ²	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted ³	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control ^{2,4} LCCO Left corner cutoff ^{2,4} RCCO Right corner cutoff ^{2,4}	MVOLT ⁵ 120 ⁵ 208 ⁵ 240 ⁵ 277 ⁵ 347 ⁶ 480 ⁶	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ⁷ RPUMBA Round pole universal mounting adaptor ⁷ Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁸

Control options	Other options	Finish (required)
Shipped installed PER NEMA twist-lock receptacle only (no controls) ⁹ PER5 Five-wire receptacle only (no controls) ^{9,10} PER7 Seven-wire receptacle only (no controls) ^{9,10} DMG 0-10V dimming driver (no controls) ¹¹ DCR Dimmable and controllable via ROAM [®] (no controls) ¹² PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc ¹³ PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc ¹³ PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ¹³	PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ¹³ BL30 Bi-level switched dimming, 30% ^{14,15} BL50 Bi-level switched dimming, 50% ^{14,15} PNMTDD3 Part night, dim till dawn ¹⁶ PNMT5D3 Part night, dim 5 hrs ¹⁶ PNMT6D3 Part night, dim 6 hrs ¹⁶ PNMT7D3 Part night, dim 7 hrs ¹⁶ FAO Field adjustable output ¹⁷	Shipped installed HS House-side shield ¹⁸ SF Single fuse (120, 277, 347V) ¹⁹ DF Double fuse (208, 240, 480V) ¹⁹ L90 Left rotated optics ¹ R90 Right rotated optics ¹ DDL Diffused drop lens ¹⁸ BS Bird spikes
		DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLTXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Controls & Shields

DL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ²⁰
DL1347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ²⁰
DL1480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ²⁰
DSHORT SBK U	Shorting cap ²⁰
DSX0HS 20C U	House-side shield for 20 LED unit ¹⁸
DSX0HS 30C U	House-side shield for 30 LED unit ¹⁸
DSX0HS 40C U	House-side shield for 40 LED unit ¹⁸
DSX0DDL U	Diffused drop lens (polycarbonate) ¹⁷
PUMBA DDBXD U*	Square and round pole universal mounting bracket adaptor (specify finish) ⁸
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) ⁸

NOTES

- 30 LEDs (30C option) and rotated options (L90 or R90) only available together.
- Not available with AMBPC.
- Only available with 530mA or 700mA.
- Not available with HS or DDL.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120V, 208V, 240V or 277V options only when ordering with fusing (SF, DF options).
- Not available with single board, 530mA product (20C 530 or 30C 530). Not available with BL30, BL50 or PNMT options.
- Existing drilled pole only. Available as a separate combination accessory; for retrofit use only: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- Must order fixture with SPA mounting. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories.
- If ROAM[®] node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR. Node with integral dimming.
- DMG option for 347V or 480V requires 1000mA.
- Specifies a ROAM[®] enabled luminaire with 0-10V dimming capability; PER option required. Additional hardware and services required for ROAM[®] deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. N/A with PIR options, PER5, PER7, BL30, BL50 or PNMT options. Node without integral dimming.

- PIR and PIR1FC3V specify the SensorSwitch SBGR-10-ODP control; PIRH and PIRH1FC3V specify the SensorSwitch SBGR-G-ODP control; see Outdoor Control Technical Guide for details. Dimming driver standard. Not available with PER5 or PER7. Ambient sensor disabled when ordered with DCR. Separate on/off required. Not available with PNMT options.
- Requires an additional switched circuit.
- Dimming driver standard. MVOLT only. Not available with 347V, 480V, DCR, PER5, PER7 or PNMT options. Not available with PIR1FC3V and PIRH1FC3V.
- Dimming driver standard. MVOLT only. Not available with 347V, 480V, DCR, PER5, PER7, BL30 or BL50. Not available with PIR1FC3V and PIRH1FC3V. Separate on/off required.
- Dimming driver standard. Not available with PER5, PER7, DMG, DCR, BL30, BL50, PNMT, PIR, PIRH, PIR1FC3V and PIRH1FC3V.
- Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Controls.
- For retrofit use only.

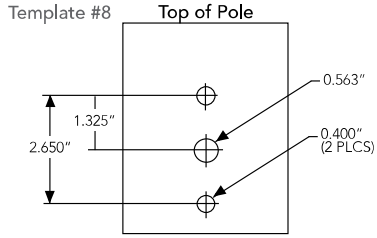
Accessories

Ordered and shipped separately.

For more control options, visit DTL and ROAM online.



Drilling



DSX0 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	DM29AS	2 at 90° **
DM28AS	2 at 180°	DM39AS	3 at 90° **
DM49AS	4 at 90° **	DM32AS	3 at 120° **

Example: SSA 20 4C **DM19AS** DDBXD

Visit Lithonia Lighting's **POLES CENTRAL** to see our wide selection of poles, accessories and educational tools.

*Round pole top must be 3.25" O.D. minimum.

**For round pole mounting (RPM) only.

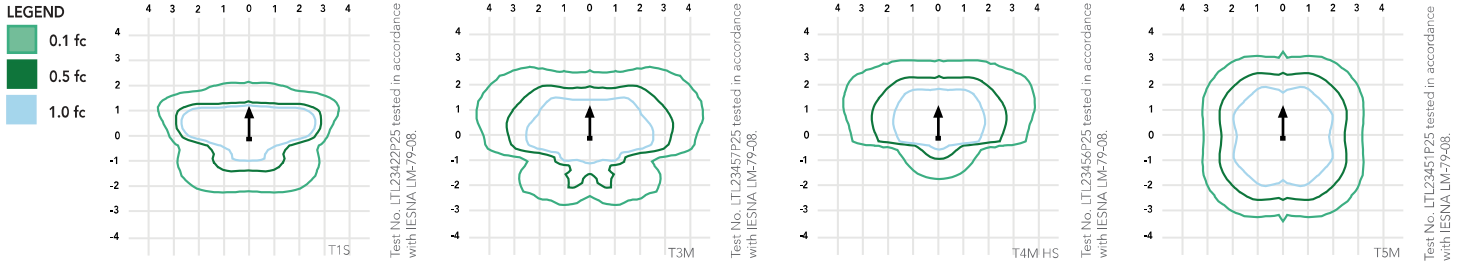
Tenon Mounting Slipfitter**

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 0 homepage](#).

Isofootcandle plots for the DSX0 LED 40C 1000 40K. Distances are in units of mounting height (20').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C / 32°F	1.02
10°C / 50°F	1.01
20°C / 68°F	1.00
25°C / 77°F	1.00
30°C / 86°F	1.00
40°C / 104°F	0.99

Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
20C	530	35	0.34	0.22	0.21	0.20	--	--
	700	45	0.47	0.28	0.24	0.22	0.18	0.14
	1000	72	0.76	0.45	0.39	0.36	0.36	0.26
30C	530	52	0.51	0.31	0.28	0.25	--	--
	700	70	0.72	0.43	0.37	0.34	0.25	0.19
	1000	104	1.11	0.64	0.56	0.49	0.47	0.34
40C	530	68	0.71	0.41	0.36	0.33	0.25	0.19
	700	91	0.94	0.55	0.48	0.42	0.33	0.24
	1000	138	1.45	0.84	0.73	0.64	0.69	0.50

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX0 LED 20C 1000			
	1	0.98	0.96	0.93
	DSX0 LED 40C 1000			
	1	0.98	0.95	0.90
DSX0 LED 40C 700				
1	0.99	0.99	0.99	0.99

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																							
LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	530 mA	35 W	T1S	4,079	1	0	1	117	4,380	1	0	1	125	4,408	1	0	1	126	2,541	1	0	1	73
			T2S	4,206	1	0	1	120	4,516	1	0	1	129	4,544	1	0	1	130	2,589	1	0	1	74
			T2M	4,109	1	0	1	117	4,413	1	0	1	126	4,440	1	0	1	127	2,539	1	0	1	73
			T3S	4,104	1	0	1	117	4,407	1	0	1	126	4,435	1	0	1	127	2,558	1	0	1	73
			T3M	4,142	1	0	1	118	4,447	1	0	1	127	4,475	1	0	1	128	2,583	1	0	1	74
			T4M	4,198	1	0	1	120	4,508	1	0	1	129	4,536	1	0	1	130	2,570	1	0	1	73
			TFTM	4,135	1	0	1	118	4,440	1	0	2	127	4,468	1	0	2	128	2,540	1	0	1	73
			T5VS	4,368	2	0	0	125	4,691	2	0	0	134	4,720	2	0	0	135	2,650	1	0	0	76
			T5S	4,401	2	0	2	126	4,725	2	0	0	135	4,755	2	0	0	136	2,690	1	0	0	77
			T5M	4,408	2	0	1	126	4,734	3	0	1	135	4,763	3	0	1	136	2,658	2	0	0	76
			T5W	4,344	3	0	1	124	4,664	3	0	1	133	4,693	3	0	1	134	2,663	2	0	1	76
			BLC	3,071	1	0	1	88	3,297	1	0	1	94	3,318	1	0	1	95					
	LCCO	2,983	1	0	1	85	3,204	1	0	1	92	3,224	1	0	1	92							
	RCCO	2,983	1	0	1	85	3,204	1	0	1	92	3,224	1	0	1	92							
	T1S	5,181	1	0	1	115	5,563	1	0	1	124	5,598	1	0	1	124	3,144	1	0	1	70		
	T2S	5,342	1	0	1	119	5,736	1	0	1	127	5,772	1	0	1	128	3,203	1	0	1	71		
	T2M	5,219	1	0	1	116	5,605	1	0	1	125	5,640	1	0	1	125	3,141	1	0	1	70		
	T3S	5,213	1	0	1	116	5,598	1	0	1	124	5,633	1	0	1	125	3,165	1	0	1	70		
	T3M	5,260	1	0	1	117	5,649	1	0	2	126	5,684	1	0	2	126	3,196	1	0	1	71		
	T4M	5,332	1	0	1	118	5,725	1	0	2	127	5,761	1	0	2	128	3,179	1	0	1	71		
	TFTM	5,252	1	0	2	117	5,640	1	0	2	125	5,675	1	0	2	126	3,143	1	0	1	70		
	T5VS	5,548	2	0	0	123	5,958	2	0	0	132	5,995	2	0	0	133	3,278	2	0	0	73		
	T5S	5,589	2	0	0	124	6,002	2	0	0	133	6,039	2	0	0	134	3,328	2	0	0	74		
	T5M	5,599	3	0	1	124	6,012	3	0	1	134	6,050	3	0	1	134	3,288	2	0	1	73		
	T5W	5,517	3	0	1	123	5,924	3	0	1	132	5,961	3	0	1	132	3,295	2	0	1	73		
	BLC	3,909	1	0	1	87	4,198	1	0	1	93	4,224	1	0	1	94							
	LCCO	3,798	1	0	1	84	4,078	1	0	1	91	4,104	1	0	1	91							
	RCCO	3,798	1	0	1	84	4,078	1	0	1	91	4,104	1	0	1	91							
	T1S	7,085	1	0	1	98	7,608	2	0	2	106	7,656	2	0	2	106							
	T2S	7,305	1	0	1	101	7,845	2	0	2	109	7,894	2	0	2	110							
	T2M	7,138	1	0	2	99	7,665	2	0	2	106	7,713	2	0	2	107							
	T3S	7,129	1	0	1	99	7,656	2	0	2	106	7,704	2	0	2	107							
	T3M	7,194	1	0	2	100	7,725	2	0	2	107	7,773	2	0	2	108							
	T4M	7,292	1	0	2	101	7,830	2	0	2	109	7,879	2	0	2	109							
	TFTM	7,183	1	0	2	100	7,713	1	0	2	107	7,761	1	0	2	108							
	T5VS	7,588	2	0	0	105	8,148	3	0	0	113	8,199	3	0	0	114							
T5S	7,644	2	0	0	106	8,208	2	0	0	114	8,259	2	0	0	115								
T5M	7,657	3	0	1	106	8,222	3	0	1	114	8,274	3	0	1	115								
T5W	7,545	3	0	1	105	8,102	3	0	2	113	8,153	3	0	2	113								
BLC	5,162	1	0	1	72	5,543	1	0	2	77	5,578	1	0	1	77								
LCCO	5,015	1	0	2	70	5,386	1	0	2	75	5,419	1	0	2	75								
RCCO	5,015	1	0	2	70	5,386	1	0	2	75	5,419	1	0	2	75								

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)							
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW			
40C (40 LEDs)	530 mA	68 W	T1S	7,926	2	0	2	117	8,511	2	0	2	125	8,564	2	0	2	126	4,878	1	0	1	72			
			T2S	8,172	2	0	2	120	8,775	2	0	2	129	8,830	2	0	2	130	4,969	1	0	1	73			
			T2M	7,985	2	0	2	117	8,574	2	0	2	126	8,628	2	0	2	127	4,874	1	0	1	72			
			T3S	7,975	1	0	2	117	8,564	2	0	2	126	8,617	2	0	2	127	4,910	1	0	1	72			
			T3M	8,047	2	0	2	118	8,642	2	0	2	127	8,696	2	0	2	128	4,958	1	0	2	73			
			T4M	8,157	1	0	2	120	8,759	2	0	2	129	8,813	2	0	2	130	4,932	1	0	2	73			
			TFTM	8,035	1	0	2	118	8,628	2	0	2	127	8,682	2	0	2	128	4,876	1	0	2	72			
			T5VS	8,488	2	0	0	125	9,115	3	0	0	134	9,172	3	0	0	135	5,086	2	0	0	75			
			T5S	8,550	2	0	0	126	9,182	3	0	1	135	9,239	3	0	1	136	5,163	2	0	0	76			
			T5M	8,565	3	0	1	126	9,198	3	0	2	135	9,255	3	0	2	136	5,102	3	0	1	75			
			T5W	8,440	3	0	2	124	9,063	3	0	2	133	9,120	3	0	2	134	5,112	3	0	1	75			
			BLC	6,142	1	0	2	90	6,595	1	0	2	97	6,636	1	0	2	98								
			LCCO	5,967	1	0	2	88	6,407	1	0	2	94	6,447	1	0	2	95								
			RCCO	5,967	1	0	2	88	6,407	1	0	2	94	6,447	1	0	2	95								
			40C (40 LEDs)	700 mA	91 W	T1S	10,066	2	0	2	111	10,810	2	0	2	119	10,877	2	0	2	120	6,206	2	0	2	68
						T2S	10,379	2	0	2	114	11,145	2	0	2	122	11,215	2	0	2	123	6,322	2	0	2	69
						T2M	10,141	2	0	2	111	10,890	2	0	2	120	10,958	2	0	2	120	6,201	2	0	2	68
T3S	10,129	2				0	2	111	10,877	2	0	2	120	10,945	2	0	2	120	6,247	1	0	2	69			
T3M	10,221	2				0	2	112	10,975	2	0	2	121	11,044	2	0	2	121	6,308	2	0	2	69			
T4M	10,359	2				0	2	114	11,124	2	0	2	122	11,194	2	0	2	123	6,275	1	0	2	69			
TFTM	10,205	2				0	2	112	10,958	2	0	3	120	11,027	2	0	3	121	6,203	1	0	2	68			
T5VS	10,781	3				0	0	118	11,576	3	0	1	127	11,649	3	0	1	128	6,569	2	0	0	72			
T5S	10,860	3				0	1	119	11,662	3	0	1	128	11,734	3	0	1	129	6,569	2	0	0	72			
T5M	10,879	3				0	2	120	11,682	3	0	2	128	11,755	3	0	2	129	6,491	3	0	1	71			
T5W	10,719	3				0	2	118	11,511	4	0	2	126	11,583	4	0	2	127	6,504	3	0	2	71			
BLC	7,819	1				0	2	86	8,396	1	0	2	92	8,448	1	0	2	93								
LCCO	7,596	1				0	2	83	8,157	1	0	2	90	8,208	1	0	2	90								
RCCO	7,596	1				0	2	83	8,157	1	0	2	90	8,208	1	0	2	90								
40C (40 LEDs)	1000 mA	138 W				T1S	13,767	2	0	2	100	14,783	3	0	3	107	14,876	3	0	3	108					
						T2S	14,194	2	0	2	103	15,242	3	0	3	110	15,338	3	0	3	111					
						T2M	13,869	2	0	2	101	14,893	3	0	3	108	14,986	3	0	3	109					
			T3S	13,852	2	0	2	100	14,875	2	0	2	108	14,968	2	0	2	108								
			T3M	13,978	2	0	2	101	15,010	3	0	3	109	15,104	3	0	3	109								
			T4M	14,168	2	0	2	103	15,214	3	0	3	110	15,309	3	0	3	111								
			TFTM	13,956	2	0	3	101	14,987	2	0	3	109	15,080	2	0	3	109								
			T5VS	14,744	3	0	1	107	15,832	3	0	1	115	15,931	4	0	1	115								
			T5S	14,852	3	0	1	108	15,948	3	0	1	116	16,048	3	0	1	116								
			T5M	14,878	4	0	2	108	15,976	4	0	2	116	16,076	4	0	2	116								
			T5W	14,660	4	0	2	106	15,742	4	0	2	114	15,840	4	0	2	115								
			BLC	10,325	1	0	2	75	11,087	1	0	2	80	11,156	1	0	2	81								
			LCCO	10,031	2	0	2	73	10,771	2	0	3	78	10,839	2	0	3	79								
			RCCO	10,031	2	0	2	73	10,771	2	0	3	78	10,839	2	0	3	79								

Performance Data

L90 and R90 Rotated Optics

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
				<table border="1"> <tr> <td rowspan="30">30C (30 LEDs)</td> <td rowspan="15">530 mA</td> <td rowspan="15">52 W</td> <td>T1S</td><td>6,130</td><td>2</td><td>0</td><td>2</td><td>118</td><td>6,583</td><td>2</td><td>0</td><td>2</td><td>127</td><td>6,624</td><td>2</td><td>0</td><td>2</td><td>127</td><td>3,841</td><td>2</td><td>0</td><td>2</td><td>74</td> </tr> <tr> <td>T2S</td><td>6,321</td><td>2</td><td>0</td><td>2</td><td>122</td><td>6,787</td><td>2</td><td>0</td><td>2</td><td>131</td><td>6,830</td><td>3</td><td>0</td><td>3</td><td>131</td><td>3,912</td><td>2</td><td>0</td><td>2</td><td>75</td> </tr> <tr> <td>T2M</td><td>6,176</td><td>2</td><td>0</td><td>2</td><td>119</td><td>6,632</td><td>3</td><td>0</td><td>3</td><td>128</td><td>6,673</td><td>3</td><td>0</td><td>3</td><td>128</td><td>3,837</td><td>2</td><td>0</td><td>2</td><td>74</td> </tr> <tr> <td>T3S</td><td>6,168</td><td>2</td><td>0</td><td>2</td><td>119</td><td>6,624</td><td>3</td><td>0</td><td>3</td><td>127</td><td>6,665</td><td>3</td><td>0</td><td>3</td><td>128</td><td>3,866</td><td>2</td><td>0</td><td>2</td><td>74</td> </tr> <tr> <td>T3M</td><td>6,224</td><td>3</td><td>0</td><td>3</td><td>120</td><td>6,684</td><td>3</td><td>0</td><td>3</td><td>129</td><td>6,726</td><td>3</td><td>0</td><td>3</td><td>129</td><td>3,904</td><td>2</td><td>0</td><td>2</td><td>75</td> </tr> <tr> <td>T4M</td><td>6,309</td><td>3</td><td>0</td><td>3</td><td>121</td><td>6,775</td><td>3</td><td>0</td><td>3</td><td>130</td><td>6,817</td><td>3</td><td>0</td><td>3</td><td>131</td><td>3,884</td><td>2</td><td>0</td><td>2</td><td>75</td> </tr> <tr> <td>TFTM</td><td>6,215</td><td>3</td><td>0</td><td>3</td><td>120</td><td>6,673</td><td>3</td><td>0</td><td>3</td><td>128</td><td>6,715</td><td>3</td><td>0</td><td>3</td><td>129</td><td>3,839</td><td>2</td><td>0</td><td>2</td><td>74</td> </tr> <tr> <td>TSVS</td><td>6,565</td><td>2</td><td>0</td><td>0</td><td>126</td><td>7,050</td><td>2</td><td>0</td><td>0</td><td>136</td><td>7,094</td><td>2</td><td>0</td><td>0</td><td>136</td><td>4,005</td><td>2</td><td>0</td><td>0</td><td>77</td> </tr> <tr> <td>T5S</td><td>6,613</td><td>2</td><td>0</td><td>0</td><td>127</td><td>7,102</td><td>2</td><td>0</td><td>0</td><td>137</td><td>7,146</td><td>2</td><td>0</td><td>0</td><td>137</td><td>4,065</td><td>2</td><td>0</td><td>0</td><td>78</td> </tr> <tr> <td>T5M</td><td>6,625</td><td>3</td><td>0</td><td>1</td><td>127</td><td>7,114</td><td>3</td><td>0</td><td>1</td><td>137</td><td>7,159</td><td>3</td><td>0</td><td>1</td><td>138</td><td>4,017</td><td>2</td><td>0</td><td>1</td><td>77</td> </tr> <tr> <td>TSW</td><td>6,528</td><td>3</td><td>0</td><td>1</td><td>126</td><td>7,010</td><td>3</td><td>0</td><td>2</td><td>135</td><td>7,054</td><td>3</td><td>0</td><td>2</td><td>136</td><td>4,025</td><td>3</td><td>0</td><td>1</td><td>77</td> </tr> <tr> <td>BLC</td><td>4,747</td><td>2</td><td>0</td><td>2</td><td>91</td><td>5,098</td><td>2</td><td>0</td><td>2</td><td>98</td><td>5,130</td><td>2</td><td>0</td><td>2</td><td>99</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>LCCO</td><td>4,612</td><td>1</td><td>0</td><td>2</td><td>89</td><td>4,953</td><td>1</td><td>0</td><td>2</td><td>95</td><td>4,984</td><td>1</td><td>0</td><td>2</td><td>96</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>RCCO</td><td>4,612</td><td>1</td><td>0</td><td>2</td><td>89</td><td>4,953</td><td>1</td><td>0</td><td>2</td><td>95</td><td>4,984</td><td>1</td><td>0</td><td>2</td><td>96</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td rowspan="15">700 mA</td> <td rowspan="15">70 W</td> <td>T1S</td><td>7,786</td><td>2</td><td>0</td><td>2</td><td>111</td><td>8,361</td><td>3</td><td>0</td><td>3</td><td>119</td><td>8,413</td><td>3</td><td>0</td><td>3</td><td>120</td><td>4,783</td><td>2</td><td>0</td><td>2</td><td>68</td> </tr> <tr> <td>T2S</td><td>8,028</td><td>2</td><td>0</td><td>2</td><td>115</td><td>8,620</td><td>3</td><td>0</td><td>3</td><td>123</td><td>8,674</td><td>3</td><td>0</td><td>3</td><td>124</td><td>4,873</td><td>2</td><td>0</td><td>2</td><td>70</td> </tr> <tr> <td>T2M</td><td>7,844</td><td>3</td><td>0</td><td>3</td><td>112</td><td>8,423</td><td>3</td><td>0</td><td>3</td><td>120</td><td>8,476</td><td>3</td><td>0</td><td>3</td><td>121</td><td>4,779</td><td>2</td><td>0</td><td>2</td><td>68</td> </tr> <tr> <td>T3S</td><td>7,834</td><td>3</td><td>0</td><td>3</td><td>112</td><td>8,413</td><td>3</td><td>0</td><td>3</td><td>120</td><td>8,465</td><td>3</td><td>0</td><td>3</td><td>121</td><td>4,815</td><td>2</td><td>0</td><td>2</td><td>69</td> </tr> <tr> <td>T3M</td><td>7,905</td><td>3</td><td>0</td><td>3</td><td>113</td><td>8,489</td><td>3</td><td>0</td><td>3</td><td>121</td><td>8,542</td><td>3</td><td>0</td><td>3</td><td>122</td><td>4,862</td><td>3</td><td>0</td><td>3</td><td>69</td> </tr> <tr> <td>T4M</td><td>8,013</td><td>3</td><td>0</td><td>3</td><td>114</td><td>8,604</td><td>3</td><td>0</td><td>3</td><td>123</td><td>8,658</td><td>3</td><td>0</td><td>3</td><td>124</td><td>4,837</td><td>3</td><td>0</td><td>3</td><td>69</td> </tr> <tr> <td>TFTM</td><td>7,893</td><td>3</td><td>0</td><td>3</td><td>113</td><td>8,476</td><td>3</td><td>0</td><td>3</td><td>121</td><td>8,529</td><td>3</td><td>0</td><td>3</td><td>122</td><td>4,781</td><td>3</td><td>0</td><td>3</td><td>68</td> </tr> <tr> <td>TSVS</td><td>8,338</td><td>2</td><td>0</td><td>0</td><td>119</td><td>8,954</td><td>3</td><td>0</td><td>0</td><td>128</td><td>9,010</td><td>3</td><td>0</td><td>0</td><td>129</td><td>4,988</td><td>2</td><td>0</td><td>0</td><td>71</td> </tr> <tr> <td>T5S</td><td>8,400</td><td>2</td><td>0</td><td>0</td><td>120</td><td>9,020</td><td>3</td><td>0</td><td>1</td><td>129</td><td>9,076</td><td>3</td><td>0</td><td>1</td><td>130</td><td>5,063</td><td>2</td><td>0</td><td>0</td><td>72</td> </tr> <tr> <td>T5M</td><td>8,414</td><td>3</td><td>0</td><td>1</td><td>120</td><td>9,036</td><td>3</td><td>0</td><td>2</td><td>129</td><td>9,092</td><td>3</td><td>0</td><td>2</td><td>130</td><td>5,003</td><td>3</td><td>0</td><td>1</td><td>71</td> </tr> <tr> <td>TSW</td><td>8,291</td><td>3</td><td>0</td><td>2</td><td>118</td><td>8,903</td><td>3</td><td>0</td><td>2</td><td>127</td><td>8,959</td><td>3</td><td>0</td><td>2</td><td>128</td><td>5,013</td><td>3</td><td>0</td><td>1</td><td>72</td> </tr> <tr> <td>BLC</td><td>6,044</td><td>2</td><td>0</td><td>2</td><td>86</td><td>6,490</td><td>3</td><td>0</td><td>3</td><td>93</td><td>6,530</td><td>3</td><td>0</td><td>3</td><td>93</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>LCCO</td><td>5,872</td><td>1</td><td>0</td><td>2</td><td>84</td><td>6,305</td><td>1</td><td>0</td><td>2</td><td>90</td><td>6,345</td><td>1</td><td>0</td><td>2</td><td>91</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>RCCO</td><td>5,872</td><td>1</td><td>0</td><td>2</td><td>84</td><td>6,305</td><td>1</td><td>0</td><td>2</td><td>90</td><td>6,345</td><td>1</td><td>0</td><td>2</td><td>91</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td rowspan="15">1000 mA</td> <td rowspan="15">104 W</td> <td>T1S</td><td>10,648</td><td>3</td><td>0</td><td>3</td><td>102</td><td>11,434</td><td>3</td><td>0</td><td>3</td><td>110</td><td>11,506</td><td>3</td><td>0</td><td>3</td><td>111</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T2S</td><td>10,979</td><td>3</td><td>0</td><td>3</td><td>106</td><td>11,789</td><td>3</td><td>0</td><td>3</td><td>113</td><td>11,863</td><td>3</td><td>0</td><td>3</td><td>114</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T2M</td><td>10,727</td><td>3</td><td>0</td><td>3</td><td>103</td><td>11,519</td><td>3</td><td>0</td><td>3</td><td>111</td><td>11,591</td><td>3</td><td>0</td><td>3</td><td>111</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T3S</td><td>10,714</td><td>3</td><td>0</td><td>3</td><td>103</td><td>11,505</td><td>3</td><td>0</td><td>3</td><td>111</td><td>11,577</td><td>3</td><td>0</td><td>3</td><td>111</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T3M</td><td>10,812</td><td>3</td><td>0</td><td>3</td><td>104</td><td>11,610</td><td>4</td><td>0</td><td>4</td><td>112</td><td>11,682</td><td>4</td><td>0</td><td>4</td><td>112</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T4M</td><td>10,958</td><td>3</td><td>0</td><td>3</td><td>105</td><td>11,767</td><td>3</td><td>0</td><td>3</td><td>113</td><td>11,841</td><td>3</td><td>0</td><td>3</td><td>114</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>TFTM</td><td>10,795</td><td>3</td><td>0</td><td>3</td><td>104</td><td>11,592</td><td>3</td><td>0</td><td>3</td><td>111</td><td>11,664</td><td>4</td><td>0</td><td>4</td><td>112</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>TSVS</td><td>11,404</td><td>3</td><td>0</td><td>0</td><td>110</td><td>12,245</td><td>3</td><td>0</td><td>1</td><td>118</td><td>12,322</td><td>3</td><td>0</td><td>1</td><td>118</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T5S</td><td>11,487</td><td>3</td><td>0</td><td>1</td><td>110</td><td>12,336</td><td>3</td><td>0</td><td>1</td><td>119</td><td>12,413</td><td>3</td><td>0</td><td>1</td><td>119</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>T5M</td><td>11,508</td><td>3</td><td>0</td><td>2</td><td>111</td><td>12,357</td><td>4</td><td>0</td><td>2</td><td>119</td><td>12,434</td><td>4</td><td>0</td><td>2</td><td>120</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>TSW</td><td>11,339</td><td>4</td><td>0</td><td>2</td><td>109</td><td>12,176</td><td>4</td><td>0</td><td>2</td><td>117</td><td>12,252</td><td>4</td><td>0</td><td>2</td><td>118</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>BLC</td><td>7,981</td><td>3</td><td>0</td><td>3</td><td>77</td><td>8,570</td><td>3</td><td>0</td><td>3</td><td>82</td><td>8,624</td><td>3</td><td>0</td><td>3</td><td>83</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>LCCO</td><td>7754</td><td>1</td><td>0</td><td>2</td><td>75</td><td>8326</td><td>2</td><td>0</td><td>2</td><td>80</td><td>8378</td><td>2</td><td>0</td><td>2</td><td>81</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>RCCO</td><td>7754</td><td>1</td><td>0</td><td>2</td><td>75</td><td>8326</td><td>2</td><td>0</td><td>2</td><td>80</td><td>8378</td><td>2</td><td>0</td><td>2</td><td>81</td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																					30C (30 LEDs)	530 mA	52 W	T1S	6,130	2	0	2	118	6,583	2	0	2	127	6,624	2	0	2	127	3,841	2	0	2	74	T2S	6,321	2	0	2	122	6,787	2	0	2	131	6,830	3	0	3	131	3,912	2	0	2	75	T2M	6,176	2	0	2	119	6,632	3	0	3	128	6,673	3	0	3	128	3,837	2	0	2	74	T3S	6,168	2	0	2	119	6,624	3	0	3	127	6,665	3	0	3	128	3,866	2	0	2	74	T3M	6,224	3	0	3	120	6,684	3	0	3	129	6,726	3	0	3	129	3,904	2	0	2	75	T4M	6,309	3	0	3	121	6,775	3	0	3	130	6,817	3	0	3	131	3,884	2	0	2	75	TFTM	6,215	3	0	3	120	6,673	3	0	3	128	6,715	3	0	3	129	3,839	2	0	2	74	TSVS	6,565	2	0	0	126	7,050	2	0	0	136	7,094	2	0	0	136	4,005	2	0	0	77	T5S	6,613	2	0	0	127	7,102	2	0	0	137	7,146	2	0	0	137	4,065	2	0	0	78	T5M	6,625	3	0	1	127	7,114	3	0	1	137	7,159	3	0	1	138	4,017	2	0	1	77	TSW	6,528	3	0	1	126	7,010	3	0	2	135	7,054	3	0	2	136	4,025	3	0	1	77	BLC	4,747	2	0	2	91	5,098	2	0	2	98	5,130	2	0	2	99						LCCO	4,612	1	0	2	89	4,953	1	0	2	95	4,984	1	0	2	96						RCCO	4,612	1	0	2	89	4,953	1	0	2	95	4,984	1	0	2	96						700 mA	70 W	T1S	7,786	2	0	2	111	8,361	3	0	3	119	8,413	3	0	3	120	4,783	2	0	2	68	T2S	8,028	2	0	2	115	8,620	3	0	3	123	8,674	3	0	3	124	4,873	2	0	2	70	T2M	7,844	3	0	3	112	8,423	3	0	3	120	8,476	3	0	3	121	4,779	2	0	2	68	T3S	7,834	3	0	3	112	8,413	3	0	3	120	8,465	3	0	3	121	4,815	2	0	2	69	T3M	7,905	3	0	3	113	8,489	3	0	3	121	8,542	3	0	3	122	4,862	3	0	3	69	T4M	8,013	3	0	3	114	8,604	3	0	3	123	8,658	3	0	3	124	4,837	3	0	3	69	TFTM	7,893	3	0	3	113	8,476	3	0	3	121	8,529	3	0	3	122	4,781	3	0	3	68	TSVS	8,338	2	0	0	119	8,954	3	0	0	128	9,010	3	0	0	129	4,988	2	0	0	71	T5S	8,400	2	0	0	120	9,020	3	0	1	129	9,076	3	0	1	130	5,063	2	0	0	72	T5M	8,414	3	0	1	120	9,036	3	0	2	129	9,092	3	0	2	130	5,003	3	0	1	71	TSW	8,291	3	0	2	118	8,903	3	0	2	127	8,959	3	0	2	128	5,013	3	0	1	72	BLC	6,044	2	0	2	86	6,490	3	0	3	93	6,530	3	0	3	93						LCCO	5,872	1	0	2	84	6,305	1	0	2	90	6,345	1	0	2	91						RCCO	5,872	1	0	2	84	6,305	1	0	2	90	6,345	1	0	2	91						1000 mA	104 W	T1S	10,648	3	0	3	102	11,434	3	0	3	110	11,506	3	0	3	111						T2S	10,979	3	0	3	106	11,789	3	0	3	113	11,863	3	0	3	114						T2M	10,727	3	0	3	103	11,519	3	0	3	111	11,591	3	0	3	111						T3S	10,714	3	0	3	103	11,505	3	0	3	111	11,577	3	0	3	111						T3M	10,812	3	0	3	104	11,610	4	0	4	112	11,682	4	0	4	112						T4M	10,958	3	0	3	105	11,767	3	0	3	113	11,841	3	0	3	114						TFTM	10,795	3	0	3	104	11,592	3	0	3	111	11,664	4	0	4	112						TSVS	11,404	3	0	0	110	12,245	3	0	1	118	12,322	3	0	1	118						T5S	11,487	3	0	1	110	12,336	3	0	1	119	12,413	3	0	1	119						T5M	11,508	3	0	2	111	12,357	4	0	2	119	12,434	4	0	2	120						TSW	11,339	4	0	2	109	12,176	4	0	2	117	12,252	4	0	2	118						BLC	7,981	3	0	3	77	8,570	3	0	3	82	8,624	3	0	3	83						LCCO	7754	1	0	2	75	8326	2	0	2	80	8378	2	0	2	81						RCCO	7754	1	0	2	75	8326	2	0	2	80	8378	2	0	2	81	
30C (30 LEDs)	530 mA	52 W	T1S	6,130	2	0	2	118	6,583	2	0	2	127	6,624	2	0	2	127	3,841	2	0	2	74																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T2S	6,321	2	0	2	122	6,787	2	0	2	131	6,830	3	0	3	131	3,912	2	0	2	75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T2M	6,176	2	0	2	119	6,632	3	0	3	128	6,673	3	0	3	128	3,837	2	0	2	74																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T3S	6,168	2	0	2	119	6,624	3	0	3	127	6,665	3	0	3	128	3,866	2	0	2	74																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T3M	6,224	3	0	3	120	6,684	3	0	3	129	6,726	3	0	3	129	3,904	2	0	2	75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T4M	6,309	3	0	3	121	6,775	3	0	3	130	6,817	3	0	3	131	3,884	2	0	2	75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			TFTM	6,215	3	0	3	120	6,673	3	0	3	128	6,715	3	0	3	129	3,839	2	0	2	74																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			TSVS	6,565	2	0	0	126	7,050	2	0	0	136	7,094	2	0	0	136	4,005	2	0	0	77																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T5S	6,613	2	0	0	127	7,102	2	0	0	137	7,146	2	0	0	137	4,065	2	0	0	78																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			T5M	6,625	3	0	1	127	7,114	3	0	1	137	7,159	3	0	1	138	4,017	2	0	1	77																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			TSW	6,528	3	0	1	126	7,010	3	0	2	135	7,054	3	0	2	136	4,025	3	0	1	77																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			BLC	4,747	2	0	2	91	5,098	2	0	2	98	5,130	2	0	2	99																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
			LCCO	4,612	1	0	2	89	4,953	1	0	2	95	4,984	1	0	2	96																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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			700 mA	70 W	T1S	7,786	2	0	2	111	8,361	3	0	3	119	8,413	3	0	3	120	4,783	2	0	2		68																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	T2S	8,028			2	0	2	115	8,620	3	0	3	123	8,674	3	0	3	124	4,873	2	0	2	70																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	T2M	7,844			3	0	3	112	8,423	3	0	3	120	8,476	3	0	3	121	4,779	2	0	2	68																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	T3S	7,834			3	0	3	112	8,413	3	0	3	120	8,465	3	0	3	121	4,815	2	0	2	69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	T3M	7,905			3	0	3	113	8,489	3	0	3	121	8,542	3	0	3	122	4,862	3	0	3	69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	T4M	8,013			3	0	3	114	8,604	3	0	3	123	8,658	3	0	3	124	4,837	3	0	3	69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	TFTM	7,893			3	0	3	113	8,476	3	0	3	121	8,529	3	0	3	122	4,781	3	0	3	68																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	TSVS	8,338			2	0	0	119	8,954	3	0	0	128	9,010	3	0	0	129	4,988	2	0	0	71																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	T5S	8,400			2	0	0	120	9,020	3	0	1	129	9,076	3	0	1	130	5,063	2	0	0	72																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	T5M	8,414			3	0	1	120	9,036	3	0	2	129	9,092	3	0	2	130	5,003	3	0	1	71																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	TSW	8,291			3	0	2	118	8,903	3	0	2	127	8,959	3	0	2	128	5,013	3	0	1	72																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	BLC	6,044			2	0	2	86	6,490	3	0	3	93	6,530	3	0	3	93																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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			T2S	10,979	3	0	3	106	11,789	3	0	3	113	11,863	3	0	3	114																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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TSVS			11,404	3	0	0	110	12,245	3	0	1	118	12,322	3	0	1	118																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
T5S			11,487	3	0	1	110	12,336	3	0	1	119	12,413	3	0	1	119																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
T5M			11,508	3	0	2	111	12,357	4	0	2	119	12,434	4	0	2	120																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
TSW			11,339	4	0	2	109	12,176	4	0	2	117	12,252	4	0	2	118																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
BLC			7,981	3	0	3	77	8,570	3	0	3	82	8,624	3	0	3	83																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
LCCO			7754	1	0	2	75	8326	2	0	2	80	8378	2	0	2	81																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 0 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and pedestrian areas.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (0.95 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in 3000 K, 4000 K or 5000 K (70 CRI) or optional 3000 K (70 minimum CRI) or 5000 K (70 CRI) configurations. The D-Series Size 0 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine(s) configurations consist of 20, 30 or 40 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L99/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an

expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 0 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 0 utilizes the AERIS™ series pole drilling pattern (template #8). Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS

UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



Product data sheet

Bollard

BEGA Lichttechnische Spezialfabrik
Hennenbusch · D - 58708 Menden

BEGA

IP 65  

88 659


Project · Reference number

Date

Application

Shielded LED bollard with square profile and broad spread light distribution.
For the illumination of squares, access roads and entry areas.
The used LED technique offers durability and optimal light output with low power consumption at the same time.

Product description

Luminaire made of aluminium profile, aluminium alloy, aluminium and stainless steel
Safety glass with optical structure
Silicone gasket
Reflectors with mirror finish coating
Luminaire with mounting plate for bolting onto a foundation or an anchorage unit
Mounting plate with two pitch circles:
ø 70 mm, 3 elongated holes 7 mm wide
ø 100 mm, 3 elongated holes 9 mm wide
Connection box for through-wiring
– for 2 cables up to 5 × 2,5²
Fuse terminal with micro fuse
6.3 A slow ø 5 × 20 mm
LED power supply unit
220-240 V ~ 0/50-60 Hz
DC 176-280 V
Safety class I
Protection class IP 65
Dust-tight and protection against water jets
Impact strength IK07
Protection against mechanical impacts < 2 joule
 – Safety mark
CE – Conformity mark
Weight: 7.0 kg



www.bega.com

Lamp

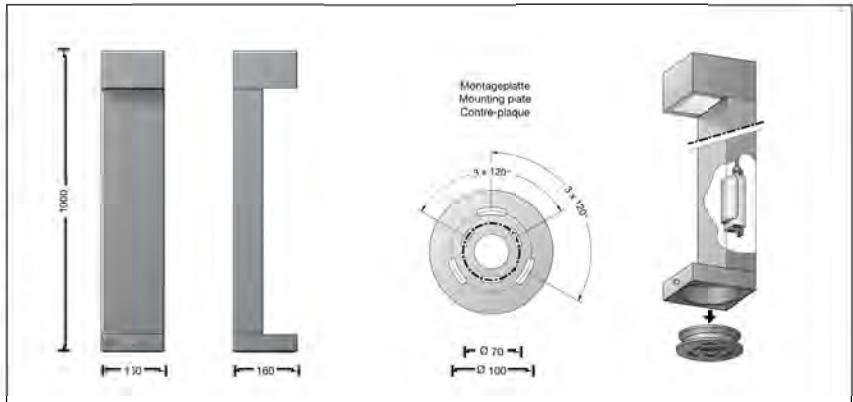
Module connected wattage 8,2 W
Luminaire connected wattage 10,3 W
Rated temperature $t_a = 25\text{ °C}$
Ambient temperature $t_{a\text{ max}} = 50\text{ °C}$

88 659

Module designation 2x LED-0233/830
Colour temperature 3000 K
Colour rendering index $R_a > 80$
Module luminous flux 1130 lm
Luminaire luminous flux 550 lm
Luminaire luminous efficiency 53,4 lm/W

88 659 K4

Module designation 2x LED-0233/840
Colour temperature 4000 K
Colour rendering index $R_a > 80$
Module luminous flux 1130 lm
Luminaire luminous flux 550 lm
Luminaire luminous efficiency 53,4 lm/W



Lifetime of the LED

Ambient temperature $t_a = 15\text{ °C}$
– at 50,000h: L90B10
– at > 500,000h: L70B50

Ambient temperature $t_a = 25\text{ °C}$
– at 50,000h: L90B10
– at > 500,000h: L70B50

max. ambient temperature $t_a = 50\text{ °C}$
– at 50,000h: L90B50
– at 149,000h: L70B50

Article No. 88 659

Colour temperature 3000 K.
Also available with 4000 K on request.
3000 K – article number
4000 K – article number + **K4**

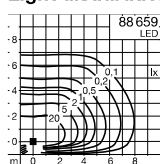
Colour graphite or silver
graphite – article number
silver – article number + **A**

Accessory

70 895 Anchorage unit
Anchorage unit with mounting flange made of galvanised steel. Total length 400 mm.
3 stainless steel fixing screws M 8.
Pitch circle ø 100 mm.

A separate instructions for use can be provided upon request.

Light distribution



Product data sheet

Bollard

BEGA Lichttechnische Spezialfabrik
Hennenbusch · D - 58708 Menden

BEGA

IP 65 

88 657



Project · Reference number

Date

Application

Shielded LED bollard with square profile and broad spread light distribution.
For the illumination of squares, access roads and entry areas.
The used LED technique offers durability and optimal light output with low power consumption at the same time.

Product description

Luminaire made of aluminium profile, aluminium alloy, aluminium and stainless steel
Safety glass with optical structure
Silicone gasket
Reflectors with mirror finish coating
Luminaire with mounting plate for bolting onto a foundation or an anchorage unit
Mounting plate with two pitch circles:
ø 70 mm, 3 elongated holes 7 mm wide
ø 100 mm, 3 elongated holes 9 mm wide
Connection box for through-wiring
– for 2 cables up to 5 x 2,5²
Fuse terminal with micro fuse
6.3 A slow ø 5 x 20 mm
LED power supply unit
220-240 V ~ 0/50-60 Hz
DC 176-280 V
Safety class I
Protection class IP 65
Dust-tight and protection against water jets
Impact strength IK07
Protection against mechanical impacts < 2 joule
 – Safety mark
 – Conformity mark
Weight: 5.4 kg



www.bega.com

Lamp

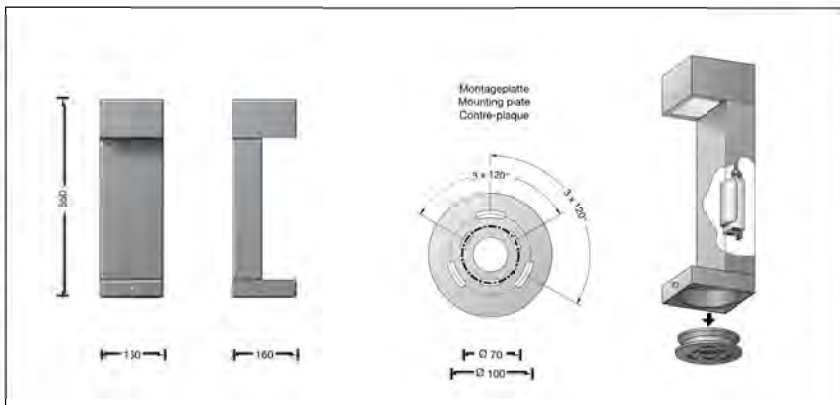
Module connected wattage 8,2 W
Luminaire connected wattage 10,3 W
Rated temperature $t_a = 25\text{ °C}$
Ambient temperature $t_{a\text{ max}} = 50\text{ °C}$

88 657

Module designation 2x LED-233/830
Colour temperature 3000 K
Colour rendering index $R_a > 80$
Module luminous flux 1130 lm
Luminaire luminous flux 550 lm
Luminaire luminous efficiency 53,4 lm/W

88 657 K4

Module designation 2x LED-233/840
Colour temperature 4000 K
Colour rendering index $R_a > 80$
Module luminous flux 1130 lm
Luminaire luminous flux 550 lm
Luminaire luminous efficiency 53,4 lm/W



Lifetime of the LED

Ambient temperature $t_a = 15\text{ °C}$
– at 50,000h: L90B10
– at > 500,000h: L70B50

Ambient temperature $t_a = 25\text{ °C}$
– at 50,000h: L90B10
– at > 500,000h: L70B50

max. ambient temperature $t_a = 50\text{ °C}$
– at 50,000h: L70B10
– at 112,000h: L70B50

Article No. 88 657

Colour temperature 3000 K.
Also available with 4000 K on request.
3000 K – article number
4000 K – article number + **K4**

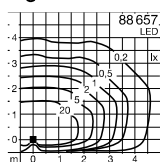
Colour graphite or silver
graphite – article number
silver – article number + **A**

Accessory

70 895 Anchorage unit
Anchorage unit with mounting flange made of galvanised steel. Total length 400 mm.
3 stainless steel fixing screws M 8.
Pitch circle ø 100 mm.

For the accessories a separate instructions for use can be provided upon request.

Light distribution





Project · Reference number

Date

Application

LED in-ground luminaire with symmetrical light distribution directed upwards for accentuated illumination of private gardens.
Luminaire resistant to foot traffic for flush installation in soil, lawn or gravel.
Luminaire must not be overrun by vehicles.
In the centre of the glass surface the luminaire attains an operating temperature of only 25 °C (measured according to EN 60598 - ambient temperature of ta 15 °C).
The used LED technique offers durability and optimal light output with low power consumption at the same time.

Product description

Luminaire housing made of glass-fibre reinforced polyamide synthetic
Cover ring made of stainless steel
Steel grade no. 1.4301
Clear safety glass
Silicone gasket
Reflector made of anodised pure aluminium
1,8 m water-resistant connecting cable
H07RN8-F 3G 1,5² with implemented water stopper and 1.2 m PVC cable conduit
LED power supply unit
220-240 V ~ 0/50-60 Hz
DC 176-264 V
Safety class I
Protection class IP 67
Dust-tight and protection against temporary immersion
Ø 0,5 m  minimum distance to the illuminated surface
Impact strength IK10
Protection against mechanical impacts < 20 joule
 – Safety mark
CE – Conformity mark
Weight: 0.85 kg

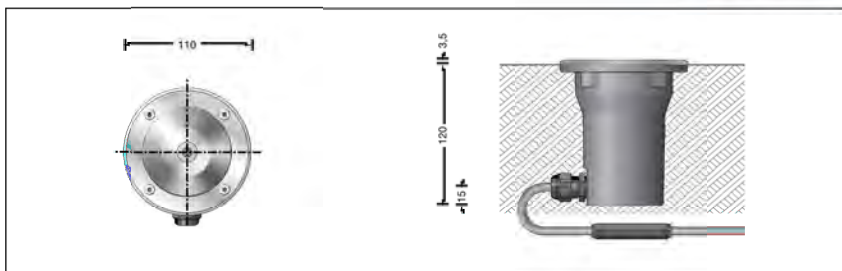
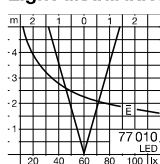
Light technique

Half beam angle 32°.
Luminaire data for the light planning program DIALux for outdoor lighting, street lighting and indoor lighting as well as luminaire data in EULUMDAT and IES-format you will find on the BEGA web page www.bega.com.

Inrush current

Inrush current: 4 A / 230 µs
Maximum number of luminaires of this type per miniature circuit breaker:
B 10 A: 50 luminaires
B 16 A: 80 luminaires
C 10 A: 50 luminaires
C 16 A: 80 luminaires

Light distribution



Lamp

Module connected wattage 4.2 W
Luminaire connected wattage 6 W
Rated temperature $t_a = 25\text{ °C}$
Ambient temperature $t_{a,max} = 35\text{ °C}$

Module designation LED-0383/830
Colour temperature 3000 K
Colour rendering index $R_a > 80$
Module luminous flux 490 lm
Luminaire luminous flux 246 lm
Luminaire luminous efficiency 41 lm/W

Lifetime of the LED

Ambient temperature $t_a = 15\text{ °C}$
– at 50,000h: L 90 B 10
– at > 500,000h: L 70 B 50
Ambient temperature $t_a = 25\text{ °C}$
– at 50,000h: L 90 B 10
– at 400,000h: L 70 B 50
max. ambient temperature $t_a = 35\text{ °C}$
– at 50,000h: L 90 B 10
– at 310,000h: L 70 B 50

Accessories

70 730 Distribution box
The distribution box is meant for installation in the soil and allows a junction from the supply cable to the luminaire and through-wiring to the next luminaire.
After the electrical connection the distribution box is filled up with gel and closed.

BEGA	22 360
Wall luminaire	IP 65

Project · Reference number	Date
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Product data sheet

Application

Wall luminaire with shielded light source.
 A luminaire of high protection class and single-sided, downwards directed light sector.
 For a variety of lighting tasks in interior and exterior lighting applications.
 The used LED technique offers durability and optimal light output with low power consumption at the same time.

Product description

Luminaire made of aluminium alloy, aluminium and stainless steel
 Matt safety glass
 Silicone gasket
 Reflector made of anodised pure aluminium
 2 fixing holes ø 5 mm
 274 mm spacing
 2 cable entries for through-wiring of mains supply cable ø 7 - 10,5 mm, max. 3 G 1.5²
 Connecting terminal and earth conductor terminal 2.5²
 LED power supply unit
 220-240 V ~ 0/50-60 Hz
 Safety class I
 Protection class IP 65
 Dust-tight and protection against water jets
 Impact strength IK06
 Protection against mechanical impacts < 1 joule
CE – Conformity mark
 Weight: 2.0 kg



Lamp

Module connected wattage 15.4 W
 Luminaire connected wattage 18.5 W
 Rated temperature $t_a = 25\text{ °C}$
 Ambient temperature $t_{a\text{ max}} = 35\text{ °C}$

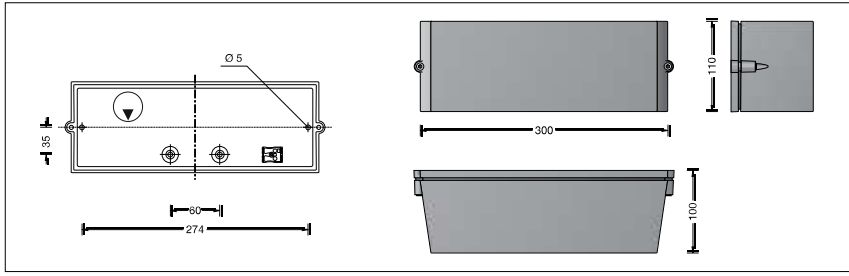
22 360

Module designation 2x LED-0269/830
 Colour temperature 3000 K
 Colour rendering index $R_a > 80$
 Module luminous flux 2910 lm
 Luminaire luminous flux* 831 lm
 Luminaire luminous efficiency* 44,9 lm/W

22 360 K4

Module designation 2x LED-0269/840
 Colour temperature 4000 K
 Colour rendering index $R_a > 80$
 Module luminous flux 2980 lm
 Luminaire luminous flux* 852 lm
 Luminaire luminous efficiency* 46,1 lm/W

* preliminary data



Lifetime of the LED

Ambient temperature $t_a = 15\text{ °C}$
 – at 50,000h: L90B10
 – at > 500,000h: L70B50

Ambient temperature $t_a = 25\text{ °C}$
 – at 50,000h: L90B10
 – at 454,000h: L70B50

max. ambient temperature $t_a = 35\text{ °C}$
 – at 50,000h: L80B10
 – at 242,000h: L70B50

Article No. 22 360

Colour temperature 3000 K.
 Also available with 4000 K on request.
 3000 K – article number
 4000 K – article number + **K4**

Colour graphite, white or silver
 graphite – article number
 white – article number + **W**
 silver – article number + **A**



FEATURES & SPECIFICATIONS

INTENDED USE — Typical applications include corridors, lobbies, conference rooms and private offices.

CONSTRUCTION — Galvanized steel mounting/plaster frame; galvanized steel junction box with bottom-hinged access covers and spring latches. Reflectors are retained by torsion springs. Vertically adjustable mounting brackets with commercial bar hangers provide 3-3/4" total adjustment. Two combination 1/2"-3/4" and four 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out). No. 12 AWG conductors, rated for 90°C. Accommodates 12"-24" joist spacing. Passive cooling thermal management for 25°C standard; high ambient (40°C) option available. Light engine and drivers are accessible from above or below ceiling. Max ceiling thickness 1-1/2".

OPTICS — LEDs are binned to a 3-step SDCM; 80 CRI minimum. LED light source concealed with diffusing optical lens. General illumination lighting with 1.0 S/MH and 55° cutoff to source and source image. Self-flanged anodized reflectors in specular, semi-specular, or matte diffuse finishes. Also available in white and black painted reflectors.

ELECTRICAL — Multi-volt (120-277V, 50/60Hz) eldoLED 0-10V dimming drivers mounted to junction box, 10% or 1% minimum dimming level available. 0-10V dimming fixture requires two (2) additional low-voltage wires to be pulled. 70% lumen maintenance at 50,000 hours.

LISTINGS — Certified to US and Canadian safety standards. Damp location standard (wet location, covered ceiling optional).

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number
Notes
Type

LDN6

6" OPEN and WALLWASH LED
Non-IC
New Construction Downlight



A+ Capable options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: LDN6 35/15 L06AR LSS MVOLT EZ10

LDN6		Color temperature				Aperture/Trim Color		Finish		Voltage		
Series		27/ 2700K		30/ 3000K		L06 Downlight		LSS Semi-specular		MVOLT Multi-volt		
LDN6 6" round		05	500 lumens	25	2500 lumens	LW6 Wallwash	AR	Clear	LD Matte diffuse	120	120V	
		10	1000 lumens	30	3000 lumens		WR ²	White		277	277V	
		15	1500 lumens	40	4000 lumens		BR ²	Black		LS Specular	347 ³	347V
		20	2000 lumens	50	5000 lumens							

Driver	Options	
EZ10 eldoLED 10% 0-10V	SF ⁴	Single fuse
EZ1 eldoLED 1% 0-10V	TRW ⁵	White painted flange
	TRBL ⁵	Black painted flange
	ELR	Batterypack (remote)
	EL	Batterypack
	NPS80EZ ⁶	nLight® dimming pack controls 0-10V eldoLED drivers.
	NPS80EZER ⁶	nLight® dimming pack controls 0-10V eldoLED drivers. ER controls fixtures on emergency circuit.
	HAO	High ambient option
	CP	Chicago Plenum
	WL	Wet location
	RRL	RELOC®-ready luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature. Available only in RRLA, RRLB, RRLAE, and RRLC12S.

Accessories: Order as separate catalog number.	
EAC ISSM 375	Compact interruptible emergency AC power system
EAC ISSM 125	Compact interruptible emergency AC power system
GRA68 JZ	Oversized trim ring with 8" outside diameter ¹
SCA6	Sloped ceiling adapter. Refer to TECH-SCA for more options.

Notes

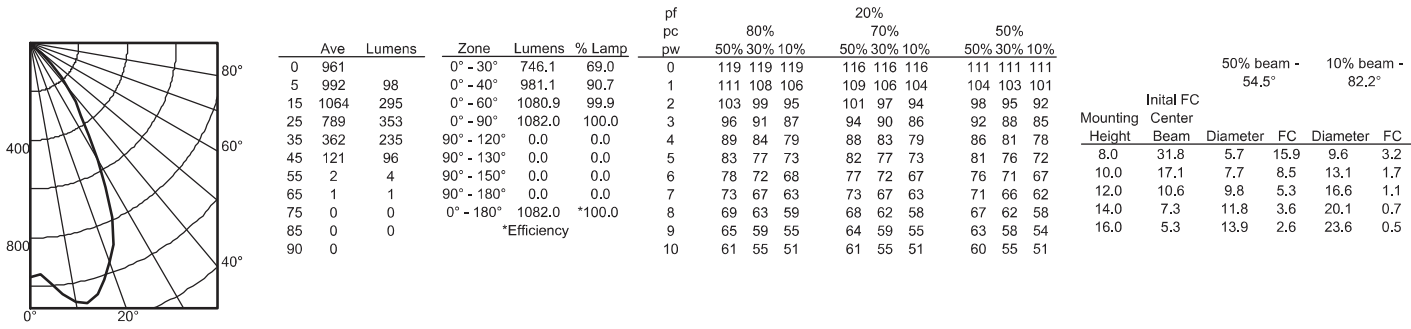
- Overall height varies based on lumen package; refer to dimensional chart on page 3.
- Not available with finishes.
- Not available with emergency options.
- 120V only.
- Available with clear (AR) reflector only.
- Must specify voltage 120V or 277V.

LDN6

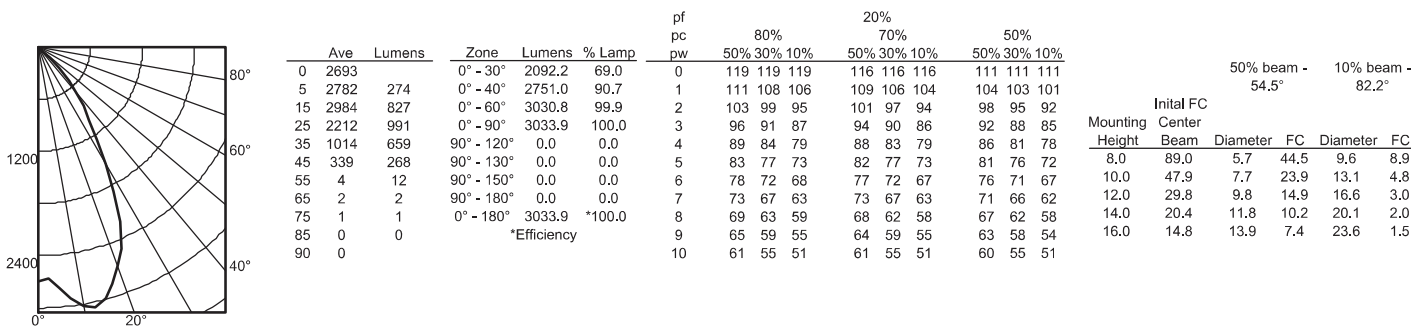
PHOTOMETRY

Distribution Curve Distribution Data Output Data Coefficient of Utilization Illuminance Data at 30" Above Floor for a Single Luminaire

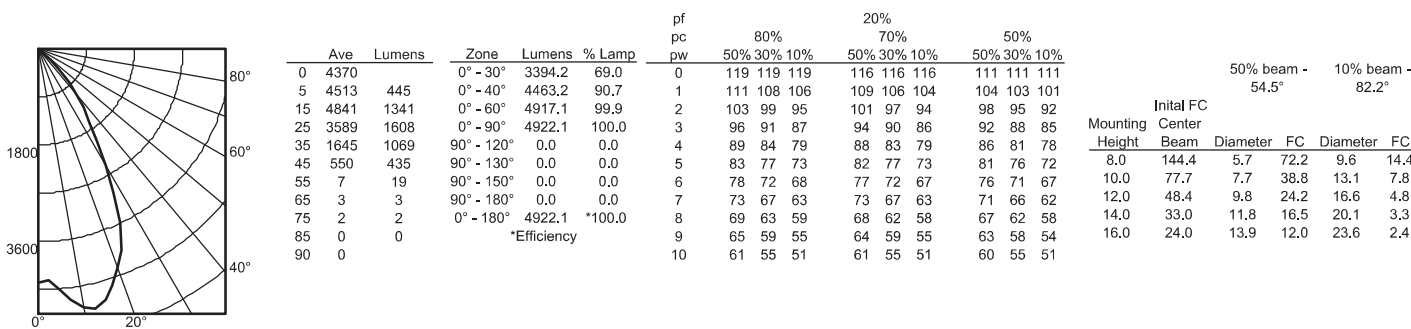
LDN6 35/10 L06AR, input watts: 12.75, delivered lumens: 1082, LM/W = 84.86, spacing criterion at 0= 1.02, test no. ISF 30716P31.



LDN6 35/30 L06AR, input watts: 34.69, delivered lumens: 3033.9, LM/W = 87.45, spacing criterion at 0= 1.02, test no. ISF 30716P22.



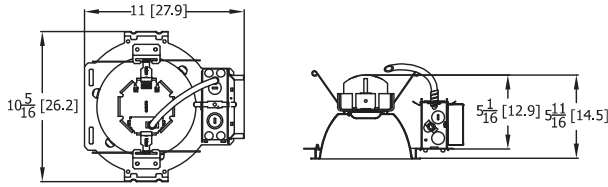
LDN6 35/50 L06AR, input watts: 55.56, delivered lumens: 4922.1, LM/W = 88.59, spacing criterion at 0= 1.02, test no. ISF 30716P40.



LDN6

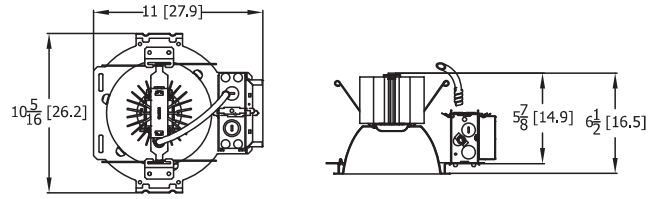
* All dimensions are inches (centimeters) unless otherwise noted.

LDN6 1500 LUMEN



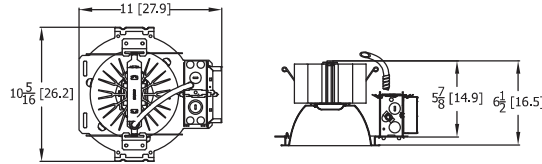
Aperture: 6-1/4 (15.9)
Ceiling Opening: 7-1/8 (18.1)
Overlap trim: 7-1/2 (19.1)

LDN6 3000 LUMEN



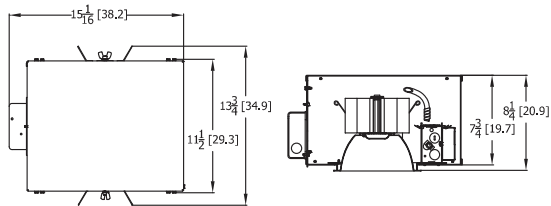
Aperture: 6-1/4 (15.9)
Ceiling Opening: 7-1/8 (18.1)
Overlap trim: 7-1/2 (19.1)

LDN6 5000 LUMEN



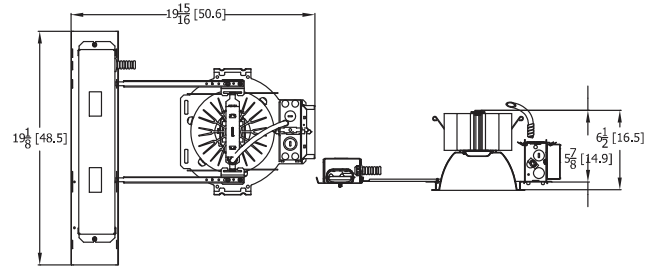
Marked Spacing: 24 x 24 x 10
Aperture: 6-1/4 (15.9)
Ceiling Opening: 7-1/8 (18.1)
Overlap trim: 7-1/2 (19.1)

LDN6 CP



Marked Spacing above 3000 lumen: 24 x 24 x 10
Aperture: 6-1/4 (15.9)
Ceiling Opening: 7-1/8 (18.1)
Overlap trim: 7-1/2 (19.1)

LDN6 1500 EL-ELR



Marked Spacing above 3000 lumen: 24 x 24 x 10
Aperture: 6-1/4 (15.9)
Ceiling Opening: 7-1/8 (18.1)
Overlap trim: 7-1/2 (19.1)

LDN6			
Target Lumen	Lumens @ 3500K	Wattage	LPW
500	662.2	7.6	87.1
1000	1082.0	12.8	84.5
1500	1606.0	20.5	78.3
2000	2023.0	22.6	89.5
2500	2529.5	27.1	93.3
3000	3034.0	34.7	87.4
4000	3977.5	44.1	90.2
5000	4922.2	55.5	88.7

EL/ELR AVAILABILITY/COMPATIBILITY - INITIAL LUMENS			
Lumen package	Watts	Initial lumens EL/ELR	Emergency LED driver
600	12	500	PS1050
1000	18	575	PS1050
1500	26	640	PS1050
2000	35	690	PS1050

LUMEN OUTPUT MULTIPLIERS - FINISH			
	Clear (AR)	White (WR)	Black (BR)
Specular (LS)	1.0	N/A	N/A
Semi-specular (LSS)	0.950	N/A	N/A
Matte diffuse (LD)	0.85	N/A	N/A
Painted	N/A	0.87	0.73

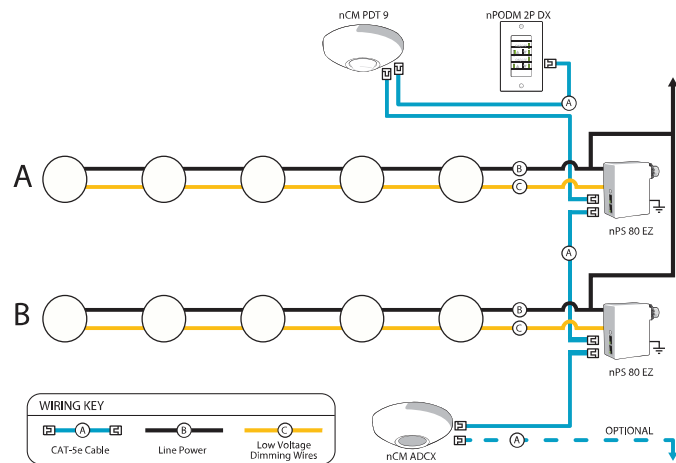
LUMEN OUTPUT MULTIPLIERS - CCT				
	2700K	3000K	3500K	4000K
80CRI	0.950	0.966	1.000	1.025

Notes

- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- CRI: 80 typical.

ADDITIONAL DATA

COMPATIBLE 0-10V WALL-MOUNT DIMMERS		
MANUFACTURER	PART NO.	POWER BOOSTER AVAILABLE
Lutron®	Diva® DDTV	
	Diva® DVSCTV	
	Nova T® NTFTV	
	Nova® NFTV	
Leviton®	AWSMT-7DW	CN100
	AWSMG-7DW	PE300
	AMRMG-7DW	
	Leviton Centura Fluorescent Control System	
	IlumaTech® IP7 Series	
Synergy®	ISD BC	RDMFC
	SLD LPCS	
	Digital Equinox (DEQ BC)	
Douglas Lighting Controls	WPC-5721	
Entertainment Technology	Tap Glide TG600FAM120 (120V)	
	Tap Glide Heatsink TGH1500FAM120 (120V)	
	Oasis OA2000FAMU	
Honeywell	EL7315A1019	EL7305A1010 (optional)
	EL7315A1009	
HUNT Dimming	Preset slide: PS-010-IV and PS-010-WH	
	Preset slide: PS-010-3W-IV and PS-010-3W-WH	
	Preset slide, controls FD-010: PS-IFC-010-IV and PS-IFC-010-WH-120/277V	
	Preset slide, controls FD-010: PS-IFC-010-3W-IV and PS-IFC-010-3W-WH-120/277V	
	Remote mounted unit: FD-010	
Lehigh Electronic Products	Solitaire	PBX
PDM Electrical Products	WPC-5721	
Starfield Controls	TR61 with DALI interface port	RT03 DALInet Router
WattStopper®	LS-4 used with LCD-101 and LCD-103	



nLight® Control Accessories: Order as separate catalog number. Visit www.sensorswitch.com/nLight for complete listing of nLight controls.			
WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODM [color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 / nCM PDT 9
On/Off & Raise/Lower	nPODM DX [color]	Large motion 360°, ceiling (PIR / dual tech)	nCM 10 / nCM PDT 10
Graphic Touchscreen	nPOD GFX [color]	Wide view (PIR / dual tech)	nWV 16 / nWV PDT 16
Photocell controls	Model number	Wall Switch w/ Raise/Lower (PIR / dual tech)	nWSX LV DX / nWSX PDT LV DX
Dimming	nCM ADCX	Cat-5 cables (plenum rated)	Model number
		10', CAT5 10FT	CAT5 10FT J1
		15', CAT5 15FT	CAT5 15FT J1

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® control networks when ordered with drivers marked by a **shaded background***
- This luminaire is part of an A+ Certified solution for nLight control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a **shaded background***

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

BEGA Lichttechnische Spezialfabrik
Hennenbusch · D - 58708 Menden

BEGA
77 955

Product data sheet

Floodlight

IP 65

Project · Reference number

Date

Application

LED floodlight with earthspike, connecting cable and safety plug for portable installation. The used LED technique offers durability and optimal light output with low power consumption at the same time.

Product description

Floodlight made of glass-fibre reinforced polyamide
Clear safety glass
Silicone gasket
Reflector made of anodised pure aluminium
Swivel range -50°/+80°
Factory pre-wired with 5 m connecting cable H05RN-F 3 G 1[□] and power plug
LED power supply unit
220-240 V ~ 0/50-60 Hz
Safety class I
Protection class safety plug IP X4
Protected against splash water
Protection class luminaire IP 65
Dusttight and protected against water jets
Impact strength IK07
Protection against mechanical impacts < 2 joule
CE – Conformity mark
Weight: 1.0 kg

Light technique

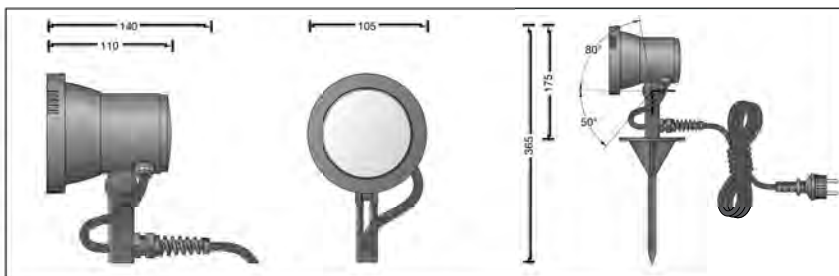
Half beam angle 32°.
Luminaire data for the light planning program DIALux for outdoor lighting, street lighting and indoor lighting as well as luminaire data in EULUMDAT and IES-format you will find on the BEGA web page www.bega.com.

Lamp

Module connected wattage	4,2 W
Luminaire connected wattage	5,5 W
Rated temperature	t _a = 25 °C
Ambient temperature	t _{a max} = 40 °C
Module designation	LED-0488/830
Colour temperature	3000 K
Colour rendering index	R _a > 80
Module luminous flux	490 lm
Luminaire luminous flux	360 lm
Luminaire luminous efficiency	65,5 lm/W



www.bega.com



Lifetime of the LED

Ambient temperature t_a = 15 °C
 – at 50,000h: L90B10
 – at > 500,000h: L70B50

 Ambient temperature t_a = 25 °C
 – at 50,000h: L90B10
 – at 450,000h: L70B50

 max. ambient temperature t_a = 40 °C
 – at 50,000h: L90B10
 – at 290,000h: L70B50

Accessories

Permanent connecting pillar optionally with anchorage unit or screw-on base for electrical connection of portable garden luminaires and electric gardening tools.
70704 with anchorage unit and 2 safety socket outlets
70706 with screw-on base and 2 safety socket outlets
70705 with anchorage unit and 3 safety socket outlets
70709 with screw-on base and 3 safety socket outlets

Portable connecting pillar
10713 with earth spike and 2 safety socket outlets

For the accessories a separate instructions for use can be provided upon request.

	BEGA Lichttechnische Spezialfabrik Hennenbusch · D - 58708 Menden		BEGA
Product data sheet	Ceiling mounted downlight	IP 65	66 056

Project · Reference number	Date
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Application
Surface mounted LED downlight with symmetrical light distribution. The partially frosted crystal glass produces an additional vertical light and supplements the light directed downwards by multi-faceted light graphics. The used LED technique offers durability and optimal light output with low power consumption at the same time.

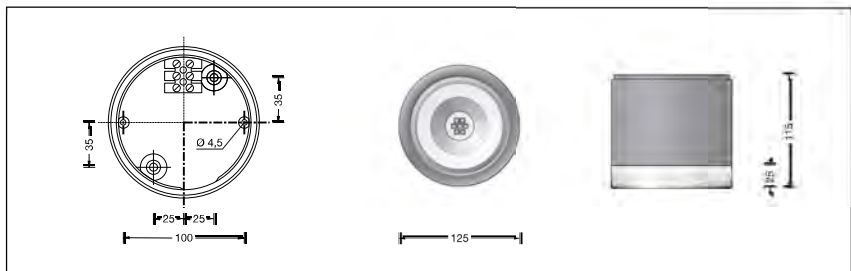
Product description
Luminaire made of aluminium alloy, aluminium and stainless steel
Partially matt crystal glass with screw neck
Silicone gasket
Reflector made of anodised pure aluminium
2 fixing holes ø 4.5 mm
100 mm spacing
2 cable entries for through-wiring of mains supply cable ø 7 - 10,5 mm, max. 3 G 1.5[□]
Connecting terminal and earth conductor terminal 2.5[□]
LED power supply unit
220-240 V ~ 0/50-60 Hz
Safety class I
Protection class IP 65
Dust-tight and protection against water jets
CE – Conformity mark
Weight: 1.2 kg

Light technique
Half beam angle 62°. Luminaire data for the light planning program DIALux for outdoor lighting, street lighting and indoor lighting as well as luminaire data in EULUMDAT and IES-format you will find on the BEGA web page www.bega.com.

Lamp
Module connected wattage 7,4 W
Luminaire connected wattage 9,2 W
Rated temperature $t_a = 25\text{ °C}$
Ambient temperature $t_{a\text{ max}} = 45\text{ °C}$

66 056
Module designation LED-0336/830
Colour temperature 3000 K
Colour rendering index $R_a > 80$
Module luminous flux 860 lm
Luminaire luminous flux 531 lm
Luminaire luminous efficiency 57,7 lm/W

66 056 K4
Module designation LED-0336/840
Colour temperature 4000 K
Colour rendering index $R_a > 80$
Module luminous flux 920 lm
Luminaire luminous flux 568 lm
Luminaire luminous efficiency 61,7 lm/W



Lifetime of the LED
Ambient temperature $t_a = 15\text{ °C}$
– at 50,000 h: L90 B10
– at > 500,000 h: L70 B50

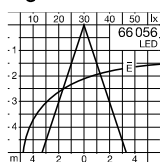
Ambient temperature $t_a = 25\text{ °C}$
– at 50,000 h: L90 B10
– at 480,000 h: L70 B50

max. ambient temperature $t_a = 45\text{ °C}$
– at 50,000 h: L90 B10
– at 270,000 h: L70 B50

Inrush current
Inrush current: 27 A / 250 μ s
Maximum number of luminaires of this type per miniature circuit breaker:
B10A: 17 luminaires
B16A: 27 luminaires
C10A: 28 luminaires
C16A: 45 luminaires

Article No. 66 056
Colour temperature 3000 K.
Also available with 4000 K on request.
3000 K – article number
4000 K – article number + **K4**
Colour graphite or white
graphite – article number
white – article number + **W**

Light distribution





WST LED

Architectural Wall Sconce



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

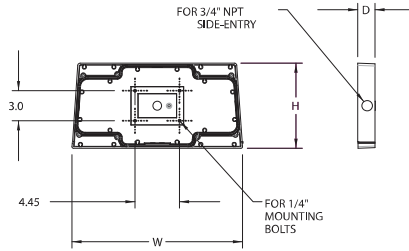
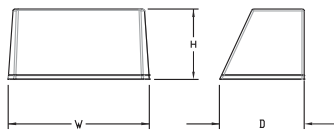
Specifications

Luminaire

- Height:** 8-1/2" (21.59 cm)
- Width:** 17" (43.18 cm)
- Depth:** 10-3/16" (25.9 cm)
- Weight:** 20 lbs (9.1 kg)

Optional Back Box (BBW)

- Height:** 4" (10.2 cm)
- Width:** 5-1/2" (14.0 cm)
- Depth:** 1-1/2" (3.8 cm)



Introduction

The WST LED is designed with the specifier in mind. The traditional, trapezoidal shape offers a soft, non-pixelated light source for end-user visual comfort. For emergency egress lighting, the WST LED offers six battery options, including remote. For additional code compliance and energy savings, there is also a Bi-level motion sensor option. With so many standard and optional features, three lumen packages, and high LPW, the WST LED is your "go to" luminaire for most any application.

Ordering Information

EXAMPLE: WST LED P1 40K VF MVOLT DDBTXD

WST LED	Performance Package	Color temperature	Distribution	Voltage	Mounting
WST LED	P1 1,500 Lumen package P2 3,000 Lumen package P3 6,000 Lumen package	27K 2700 K 30K 3000 K 40K 4000 K 50K 5000 K	VF Visual comfort forward throw VW Visual comfort wide	MVOLT ¹ 277 ¹ 120 ¹ 347 208 ¹ 480 240 ¹	Shipped included (blank) Surface mounting bracket Shipped separately BBW Surface-mounted back box ² PBBW Premium surface-mounted back box ^{2,3}

Options	Finish (required)
PE Photoelectric cell, button type PER NEMA twist-lock receptacle only PER5 Five-wire receptacle only PER7 Seven-wire receptacle only DMG 0-10V dimming extend out back of housing for external control (no control) ⁴ PIR Motion/Ambient Light Sensor, 8-15' mounting height ⁵ PIR1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ⁵ PIRH 180° motion/ambient light sensor, 15-30' mounting height ⁵ PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ⁵ SF Single fuse (120, 277, 347V) ⁶ DF Double fuse (208, 240, 480V) ⁶ DS Dual switching ⁷ E7WH Emergency battery backup (7W) ⁸	E7WC Emergency battery backup (cold, 7W) ^{8,9} E7WHR Remote emergency battery backup (remote 7W) ^{8,10} E20WH Emergency battery backup (20W) ^{8,11} E20WC Emergency battery backup (cold, 20W) ^{8,9,11} E23WHR Remote emergency battery backup (remote 20W) ^{8,10} LCE Left side conduit entry ¹² RCE Right side conduit entry ¹² Shipped separately RBPW Retrofit back plate ² VG Vandal guard ¹³ WG Wire guard ¹³
DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone	

Accessories

Ordered and shipped separately.

WSTVCPBBW DDBXD U	Premium Surface - mounted back box
WSBBW DDBTX U	Surface - mounted back box
RBPW DDBXD U	Retrofit back plate

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only. when ordering with button type photocell (PE), fusing (SF, DF), or dual switching (DS).
- Also available as a separate accessory; see accessories information.
- Top conduit entry standard.
- Not available with E7WH, E7WC, E7WHR, E20WC, E20WH, or E23WHR. Not available with PER5 & PER7.
- Not available with PE, PER, PER5, PER7, VG or WG.
- Not available with MVOLT option. Button photocell (PE) can be ordered with a dedicated voltage option. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- Not available with E7WH, E7WC, E7WHR, E20WC, E20WH, or E23WHR. Used

- with inverter system. Not available with 347/480V. Not available with PE, PER, PER5 & PER7.
- Not available with 347/480V.
- Battery pack rated for -20° to 40°C.
- Comes with PBBW.
- Warranty period is 3-years.
- Not available with BBW.
- Must order with fixture; not an accessory.



Emergency Battery Operation

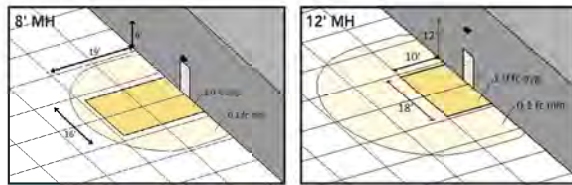
The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

All emergency backup configurations include an independent secondary driver with an integral relay to immediately detect AC power loss, meeting interpretations of [NFPA 70/NEC 2008 - 700.16](#)

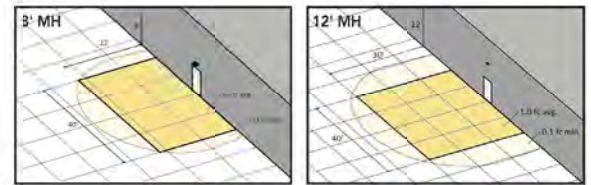
The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per [International Building Code Section 1006](#) and [NFPA 101 Life Safety Code Section 7.9](#), provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples below show illuminance of 1 fc average and 0.1 fc minimum of the P1 power package and VF distribution product in emergency mode.

10' x 10' Gridlines
8' and 12' Mounting Height



WST LED P1 27K VF MVOLT E7WH



WST LED P2 40K VF MVOLT E20WH

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts.

Performance Package	System Watts (MVOLT*)	Dist. Type	27K (2700K, 70 CRI)					30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	12W	VF	1,494	0	0	0	125	1,529	0	0	0	127	1,639	0	0	0	137	1,639	0	0	0	137
		VW	1,513	0	0	0	126	1,548	0	0	0	129	1,660	0	0	0	138	1,660	0	0	0	138
P2	25W	VF	3,162	1	0	1	126	3,236	1	0	1	129	3,468	1	0	1	139	3,468	1	0	1	139
		VW	3,202	1	0	0	128	3,277	1	0	0	131	3,512	1	0	0	140	3,512	1	0	0	140
P3	50W	VF	6,023	1	0	1	120	6,164	1	0	1	123	6,607	1	0	1	132	6,607	1	0	1	132
		VW	6,100	1	0	1	122	6,242	1	0	1	125	6,691	1	0	1	134	6,691	1	0	1	134

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier	
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Electrical Load

Performance package	System Watts	Current (A)					
		120	208	240	277	347	480
P1	11	0.1	0.06	0.05	0.04	---	---
	14	---	---	---	---	0.04	0.03
P1 DS	14	0.12	0.07	0.06	0.06	---	---
P2	25	0.21	0.13	0.11	0.1	---	---
	30	---	---	---	---	0.09	0.06
P2 DS	25	0.21	0.13	0.11	0.1	---	---
P3	50	0.42	0.24	0.21	0.19	---	---
	56	---	---	---	---	0.16	0.12
P3 DS	52	0.43	0.26	0.23	0.21	---	---

Projected LED Lumen Maintenance

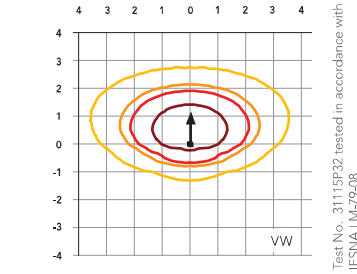
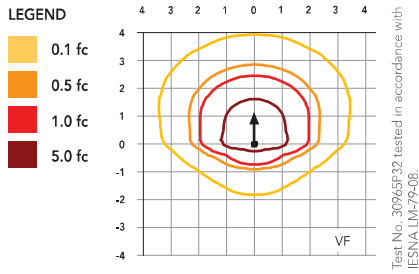
Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.95	>0.92	>0.87

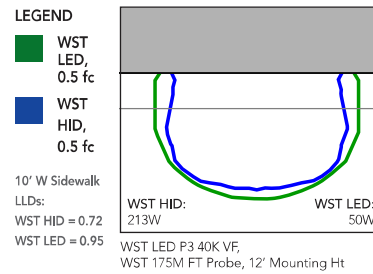
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [WST LED homepage](#).

Isofootcandle plots for the WST LED P3 40K VF and VW. Distances are in units of mounting height (10').



Distribution overlay comparison to 175W metal halide.



FEATURES & SPECIFICATIONS

INTENDED USE

The classic architectural shape of the WST LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

CONSTRUCTION

The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS

Well crafted reflector optics allow the light engine to be recessed within the luminaire, providing visual comfort, superior distribution, uniformity, and spacing in wall-mount applications. The WST LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine(s) consist of 98 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L87). Class 2 electronic driver has a power factor >90%, THD <20%. Easily-serviceable surge protection device meets a minimum Category B (per ANSI/IEEE C62.41.2).

INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections.

LISTINGS

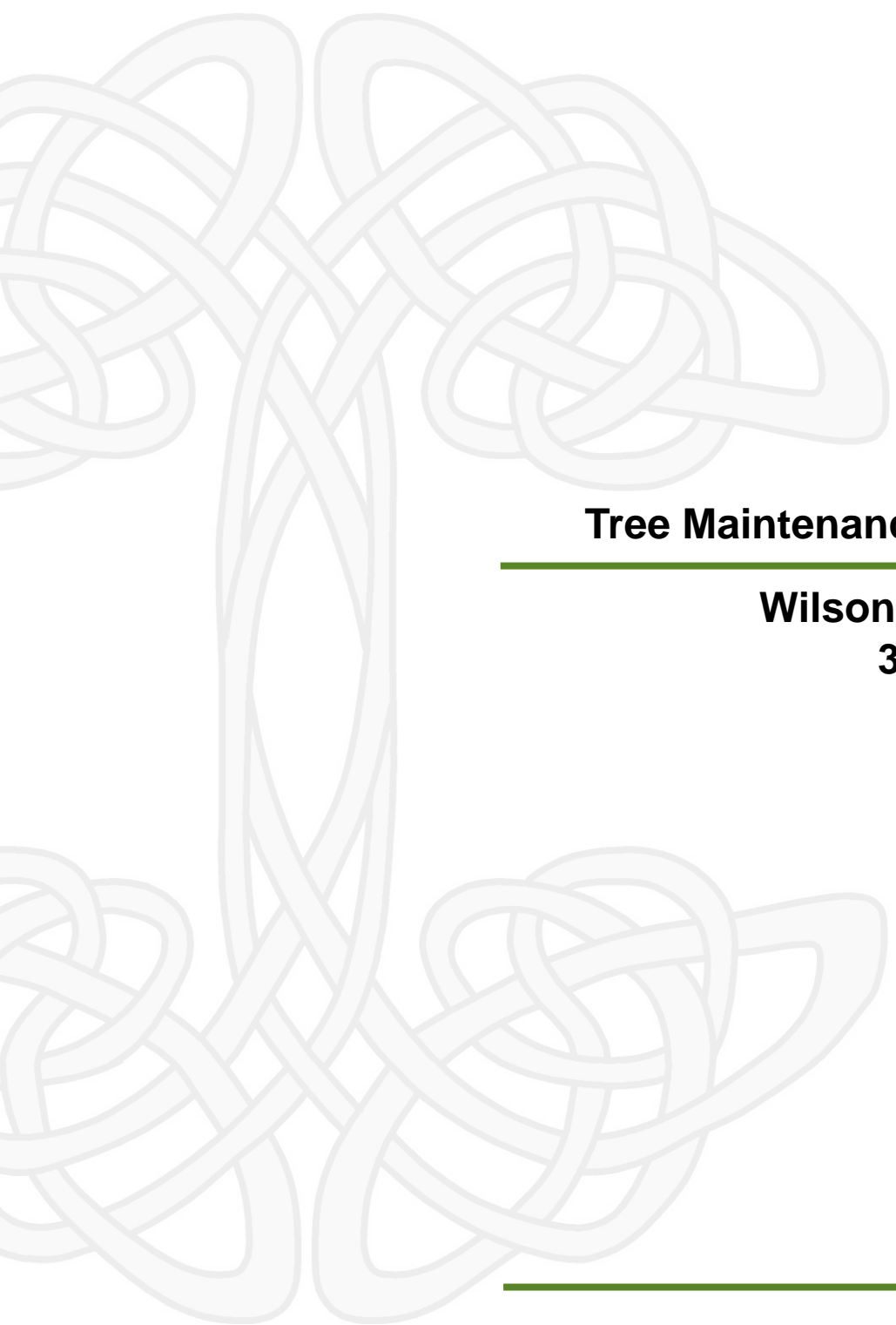
CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. PIR and back box options are rated for wet location. Rated for -30°C to 40°C ambient.

DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



Tree Maintenance and Protection Plan

**Wilsonville Hilton Garden Inn
30800 SW Parkway Ave
Wilsonville, Oregon**

**Prepared for:
Carleton Hart Architecture
830 SW 10th Ave. #200
Portland, Oregon 97205**

**Prepared by:
Trecology, Inc.
23506 S Bonney Road
Colton, Oregon 97017**

June 23, 2017

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Introduction and Assignment

On August 8, 2016, Treecology was asked by Carelton Hart Architecture to conduct a tree inventory and prepare a Tree Maintenance and Protection Plan for a proposed renovation of the Country Inn and Suites in Wilsonville, Oregon. Field work was conducted on August 12th to inventory and tag the trees onsite. The proposed project changed direction in December of 2016 and a new site plan was provided to us. The tree were reassessed for their preservation suitability on January 9, 2017.

Methods of Assessment

The trees were tagged with a metal tag and location noted was noted on an existing conditions drawing. Species, diameter at 4.5 feet above grade (dbh), canopy radius (trunk to furthest branch tip, noting major asymmetry), and condition were recorded for each tree greater than 6" dbh. The condition rating was based on both structural stability, pruning history and health of the trees and categories of good fair and poor were assigned with poor being nearly dead, critically structurally unstable or poorly pruned to the point of threatening the continued health or structural stability. Trees rated good had average to excellent vigor and no major structural instability issues.

Tree Survey Results

100 trees were inventoried on the site. The main constituents of the canopy were mature Douglas firs with young pin oaks along Parkway Avenue. Ornamental cherries, styrax and crabapples were found closely around the developed areas. Appendix 1 includes the inventory results and removal/retention recommendations.

23 trees are proposed for retention, with 77 trees proposed for removal.

Tree Maintenance and Protection Plan

The retained trees will be tagged with a numbered metal tag that corresponds to the tree survey and enclosed in tree protection fencing. This fencing will be placed according to the Tree Protection Plan and will generally cover an area that is 1 foot of radius for every inch of dbh. In areas where construction activities are directly adjacent to the trees, 6' chain link fencing attached to driven posts will be utilized to protect the trees and their root zones. Where trees are grouped together, the protection fencing can enclose multiple trees. The root protection fencing shall remain in place from beginning of demolition through the finished landscaping. No entry into or moving of the root protection fencing will be permitted without approval and/or supervision of the Project Arborist. No storage of materials or debris will be permitted. No stump grinding below grade or pulling stumps with an excavator within an additional 5' of the tree preservation will be permitted.

Retained trees will receive deep infrequent waterings throughout the construction process. One gallon per every inch diameter will be applied throughout the entire tree protection zone every 2 weeks from June 1-September 30. Mulch rings will be established or preserved, weed free, in a 3' radius from the edge of the tree.

Appendix 1: Tree Inventory

Tree id#	Common name	Species name	DBH	Canopy spread r	Condition	Notes	Remove/Retain
100	Douglas fir	<i>Pseudotsuga menziesii</i>	19	23	Good	Asymmetrical canopy	Retain
101	Douglas fir	<i>Pseudotsuga menziesii</i>	37	28	Good	Asymmetrical canopy,	Retain
102	Douglas fir	<i>Pseudotsuga menziesii</i>	30	27	Good	Asymmetrical canopy,	Retain
103	Douglas fir	<i>Pseudotsuga menziesii</i>	23	22	Good	Asymmetrical canopy	Remove
104	Douglas fir	<i>Pseudotsuga menziesii</i>	22	16	Good	Asymmetrical canopy	Remove
105	Douglas fir	<i>Pseudotsuga menziesii</i>	33	19	Good		Remove
106	Douglas fir	<i>Pseudotsuga menziesii</i>	26	20	Good		Remove
107	Norway maple	<i>Acer platanoides</i>	7	13	Good		Remove
108	Bigleaf maple	<i>Acer macrophyllum</i>	25	28	Good	Asymmetrical canopy, unacceptable impacts due to grading for parking lot	Remove
109	Norway maple	<i>Acer platanoides</i>	8	8	Poor	Topped beyond repair	Remove
110	Bigleaf maple	<i>Acer macrophyllum</i>	15	22	Good	Asymmetrical canopy	Remove
111	Douglas fir	<i>Pseudotsuga menziesii</i>	27	21	Good	Asymmetrical canopy	Remove
112	Norway maple	<i>Acer platanoides</i>	9	7	Poor	Topped beyond repair	Remove
113	Norway maple	<i>Acer platanoides</i>	9	9	Poor	Sunscald, over pruned, phytophthora infection	Remove
114	Norway maple	<i>Acer platanoides</i>	14	12	Fair	Poor pruning causing trunk damage, unacceptable impacts due to grading for parking lot	Remove
115	Norway maple	<i>Acer platanoides</i>	13	15	Poor	Poor pruning and trunk damage causing canopy die back, unacceptable impacts due to grading for parking lot	Remove
116	Norway maple	<i>Acer platanoides</i>	14	16	Fair	Root damage and poor pruning, unacceptable impacts due to grading for parking lot	Remove

Tree id#	Common name	Species name	DBH	Canopy spread r	Condition	Notes	Remove/Retain
117	Bradford pear	<i>Pyrus calleryana</i>	15	3	Poor	Topped beyond repair	Remove
118	Pin oak	<i>Quercus palustris</i>	8	9	Poor	Topped	Remove
119	Bradford pear	<i>Pyrus calleryana</i>	17	5	Poor	Topped beyond repair	Remove
120	Pin oak	<i>Quercus palustris</i>	8	6	Poor	Topped	Retained
121	Pin oak	<i>Quercus palustris</i>	10	11	Fair	Over pruned	Retained
122	Pin oak	<i>Quercus palustris</i>	6	8	Good		Retained
123	Bradford pear	<i>Pyrus calleryana</i>	16	6	Poor	Topped	Remove
124	Pin oak	<i>Quercus palustris</i>	9	10	Good		Retain
125	Pin oak	<i>Quercus palustris</i>	9	10	Good		Retain
126	Pin oak	<i>Quercus palustris</i>	9	10	Good		Retain
127	Pin oak	<i>Quercus palustris</i>	10	13	Good		Retain
128	Pin oak	<i>Quercus palustris</i>	10	10	Good		Retain
129	Pin oak	<i>Quercus palustris</i>	8	8	Fair	Over pruned	Retain
130	Douglas fir	<i>Pseudotsuga menziesii</i>	12	9	Fair	Over pruned	Remove
131	Douglas fir	<i>Pseudotsuga menziesii</i>	12	9	Fair	Over pruned	Remove
132	Ornamental cherry	<i>Prunus sp.</i>	12	9	Poor	Extensive trunk damage	Remove
133	Crabapple	<i>Malus sp.</i>	9	11	Fair	Poor vigor	Remove
134	Crabapple	<i>Malus sp.</i>	7	9	Fair	Poor vigor	Retain
135	Crabapple	<i>Malus sp.</i>	7	9	Fair	Poor vigor	Remove
136	Crabapple	<i>Malus sp.</i>	6	11	Fair	Poor vigor	Remove
137	Crabapple	<i>Malus sp.</i>	7	9	Poor	Poor pruning, poor vigor	Remove
138	Norway spruce	<i>Picea alba</i>	10	7	Good		Retain
139	Norway spruce	<i>Picea alba</i>	11	8	Good		Retain
140	Styrax	<i>Styrax japonica</i>	7	8	Fair	Poor pruning	Remove
141	Styrax	<i>Styrax japonica</i>	9	9	Fair	Poor pruning	Remove
142	Douglas fir	<i>Pseudotsuga menziesii</i>	34	17	Good		Remove

Tree id#	Common name	Species name	DBH	Canopy spread r	Condition	Notes	Remove/Retain
143	Douglas fir	<i>Pseudotsuga menziesii</i>	22	28	Good	Asymmetrical canopy	Remove
144	Douglas fir	<i>Pseudotsuga menziesii</i>	27	20	Good	Asymmetrical canopy	Remove
145	Douglas fir	<i>Pseudotsuga menziesii</i>	29	19	Good	Unacceptable impacts due to grading for parking lot	Remove
146	Douglas fir	<i>Pseudotsuga menziesii</i>	30	17	Good	Unacceptable impacts due to grading for parking lot	Remove
147	Douglas fir	<i>Pseudotsuga menziesii</i>	34	15	Good	Unacceptable impacts due to grading for parking lot	Remove
148	Western redcedar	<i>Thuja plicata</i>	14	9	Good		Remove
149	Japanese maple	<i>Acer palmatum</i>	7	7	Poor	Topped beyond repair	Remove
150	Douglas fir	<i>Pseudotsuga menziesii</i>	29	17	Good	Unacceptable impacts due to grading for parking lot	Remove
151	Douglas fir	<i>Pseudotsuga menziesii</i>	22	20	Good		Remove
152	Ornamental cherry	<i>Prunus sp.</i>	14	12	Poor	Topped	Remove
153	Douglas fir	<i>Pseudotsuga menziesii</i>	35	22	Good		Remove
154	Douglas fir	<i>Pseudotsuga menziesii</i>	37	18	Good		Retain
155	Douglas fir	<i>Pseudotsuga menziesii</i>	36	15	Good		Remove
156	Douglas fir	<i>Pseudotsuga menziesii</i>	19	14	Good		Remove
157	Douglas fir	<i>Pseudotsuga menziesii</i>	26	23	Good		Remove
158	Douglas fir	<i>Pseudotsuga menziesii</i>	17	17	Good		Remove
159	Douglas fir	<i>Pseudotsuga menziesii</i>	14	15	Good		Remove
160	Douglas fir	<i>Pseudotsuga menziesii</i>	27	19	Good		Remove
161	Douglas fir	<i>Pseudotsuga menziesii</i>	26	16	Good		Remove
162	Bigleaf maple	<i>Acer macrophyllum</i>	18	23	Good		Remove
163	Douglas fir	<i>Pseudotsuga menziesii</i>	22	17	Good		Remove
164	Ornamental cherry	<i>Prunus sp.</i>	13	10	Poor	Topped	Remove

Tree id#	Common name	Species name	DBH	Canopy spread r	Condition	Notes	Remove/Retain
165	Douglas fir	<i>Pseudotsuga menziesii</i>	33	20	Good	Asymmetrical canopy	Remove
166	Douglas fir	<i>Pseudotsuga menziesii</i>	27	16	Good		Remove
167	Bigleaf maple	<i>Acer macrophyllum</i>	23	25	Good	Asymmetrical canopy	Remove
168	Japanese maple	<i>Acer palmatum</i>	9	2	Poor	Topped	Remove
169	Douglas fir	<i>Pseudotsuga menziesii</i>	22	19	Good		Remove
170	Douglas fir	<i>Pseudotsuga menziesii</i>	13	13	Good		Remove
171	Douglas fir	<i>Pseudotsuga menziesii</i>	24	21	Good		Remove
172	Douglas fir	<i>Pseudotsuga menziesii</i>	30	20	Good		Remove
173	Douglas fir	<i>Pseudotsuga menziesii</i>	23	21	Good		Remove
174	Douglas fir	<i>Pseudotsuga menziesii</i>	44	17	Good		Remove
175	Ornamental cherry	<i>Prunus sp.</i>	10	6	Poor	Topped	Remove
176	Ornamental cherry	<i>Prunus sp.</i>	12	8	Poor	Topped	Remove
177	Ornamental cherry	<i>Prunus sp.</i>	17	10	Poor	Topped	Remove
178	Ornamental cherry	<i>Prunus sp.</i>	14	10	Poor	Topped	Remove
179	Ornamental cherry	<i>Prunus sp.</i>	15	5	Poor	Topped	Remove
180	Western redcedar	<i>Thuja plicata</i>	13	6	Poor	Over pruned	Remove
181	Ornamental cherry	<i>Prunus sp.</i>	13	8	Poor	Topped	Remove
182	Western redcedar	<i>Thuja plicata</i>	13	6	Poor	Over pruned	Remove
183	Western redcedar	<i>Thuja plicata</i>	14	8	Poor	Over pruned	Remove
184	Austrian black pine	<i>Pinus nigra</i>	19	14	Poor	Over pruned	Remove
185	Western redcedar	<i>Thuja plicata</i>	14	6	Poor	Over pruned	Remove
186	Austrian black pine	<i>Pinus nigra</i>	18	12	Poor	Over pruned	Remove

Tree id#	Common name	Species name	DBH	Canopy spread r	Condition	Notes	Remove/Retain
187	Ornamental cherry	<i>Prunus sp.</i>	14	12	Poor	Topped	Remove
188	Douglas fir	<i>Pseudotsuga menziesii</i>	35	19	Good	Asymmetrical canopy	Remove
189	Douglas fir	<i>Pseudotsuga menziesii</i>	23	18	Good	Asymmetrical canopy	Remove
190	Douglas fir	<i>Pseudotsuga menziesii</i>	26	15	Good	Asymmetrical canopy	Remove
191	Douglas fir	<i>Pseudotsuga menziesii</i>	32	19	Good	Asymmetrical canopy	Remove
192	Douglas fir	<i>Pseudotsuga menziesii</i>	38	23	Good		Remove
193	Douglas fir	<i>Pseudotsuga menziesii</i>	18	23	Good	Asymmetrical canopy	Remove
194	Flowering plum	<i>Prunus cerasifera</i>	8	12	Good		Retain
195	Flowering plum	<i>Prunus cerasifera</i>	6	9	Fair	Trunk damage, low vigor	Retain
196	Flowering plum	<i>Prunus cerasifera</i>	8	10	Good		Retain
197	Flowering plum	<i>Prunus cerasifera</i>	8	15	Good	Recent trunk damage, good vigor	Retain
198	Flowering plum	<i>Prunus cerasifera</i>	9	15	Good		Retain
199	Flowering plum	<i>Prunus cerasifera</i>	8	13	Good		Retain

Stormwater Management Facilities

Private Stormwater Report

Hilton Garden Inn

HDG Job #: CHA064

Prepared For: Carleton Hart Architecture
830 SW 10th Ave #200
Portland, OR 97205

Prepared By:



117 SE Taylor St. Suite 001
Portland, OR 97214
(P) 503 946 6690



Date: May 26, 2017

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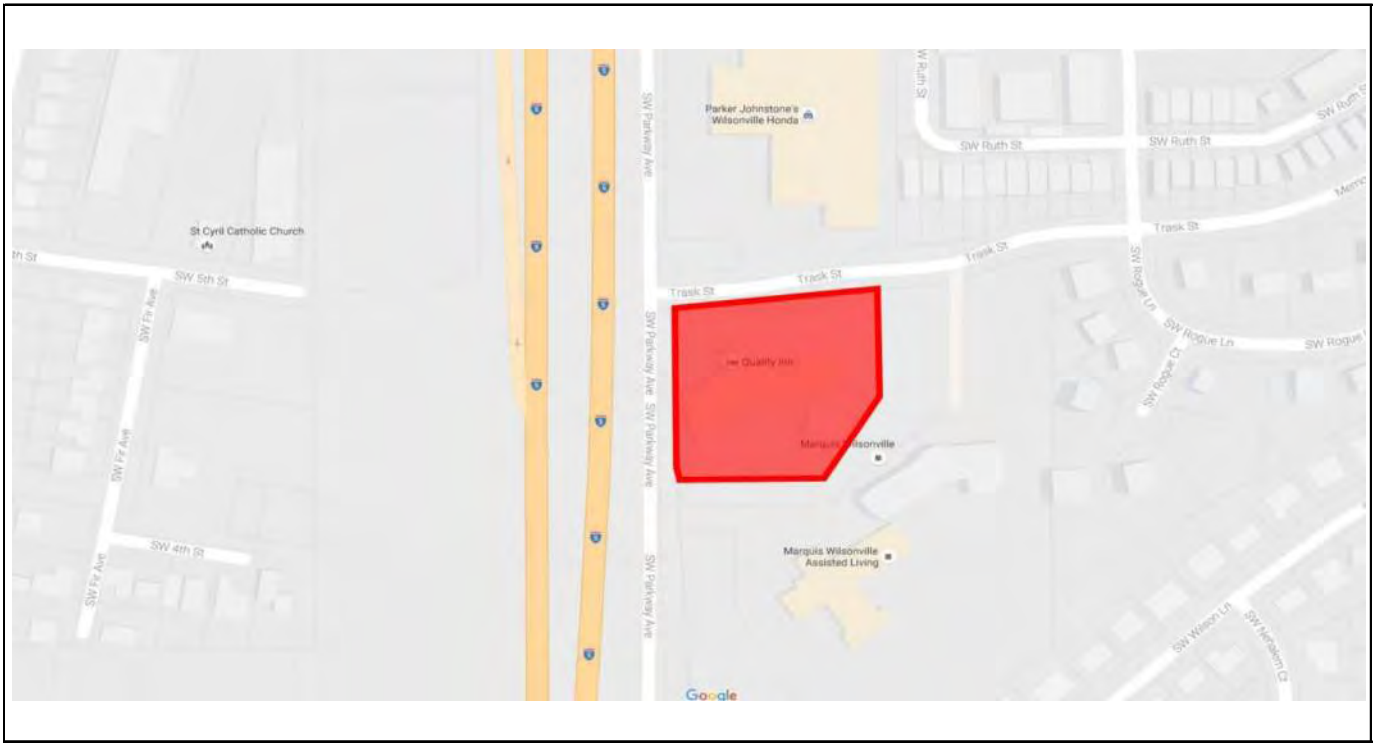
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Project Overview and Description

Location of Project	30800 SW Parkway Ave, Wilsonville, OR
Site Area/Acreage	2.38 ac
Nearest Cross Street	Trask St (Memorial Dr) & SW Parkway Ave
Property Zoning	Planned Development Commercial (PDC)
Existing Conditions	Existing hotel with east and west wing and outdoor swimming pool. North portion of the site occupied by parking areas. South portion of site consists of grass, paths, and landscaping.
Proposed Development	Demolition of existing hotel and construction of new hotel building with additional parking and new indoor pool area.
Watershed Description	Middle Willamette
Tax Map	3S 1W 24CB
Tax Lot	10201
Flood Zone	N/A
Permits Required	Building Permit Grading Permit Plumbing Permit 1200C Erosion Control Permit DEQ UIC Permit

Vicinity Map



Site Location

Methodology

Existing Drainage

The existing parking lot and building drainage is collected and conveyed to the public storm system in SW Parking Ave.

Infiltration Results

Infiltration rates between 158 inches per hour and 270 inches per hour were measured onsite. These rates are unfactored.

PRIVATE Proposed Stormwater Management Techniques

Surface water will be managed with two infiltration stormwater rain gardens. Planters BMP-1 in the southwest corner of the site shall treat and infiltrate water from the parking lot and the east side of the building roof and patio area. BMP-2, on the west side of the building, will manage water from the west half of the hotel roof. Rain gardens are sized for treatment based on the Willsonville WES BMP Sizing Tool. Overflow beyond the treatment storms shall bypass the treatment soil layer via an overflow drain and be conveyed to the rock section below the planter. Here the water will be quickly infiltrated into the soil. A factor of safety of 3 has been applied to the lowest infiltration rate determined onsite.

Discharge Point Receiving Body

Drywell or Soakage Trench (UIC)

Analysis

Computational Method Used HydroCAD models of a SBUH Type 1A Storm were used to calculate the stormwater management facility sizes for the catchment areas. See attached calculations. Below is a summary of the results.

Hydrologic Soil Group B

Hydrologic Soil Types Salem silt loam, 0 to 7 percent slopes

Table 1 – Curve Numbers

Predeveloped Pervious CN	79
Predeveloped Impervious CN	98
Post-Developed Pervious CN	84
Post-Developed Impervious CN	98

Table 2 – Design Storm Used for Infiltration

10-year	3.40 inches
----------------	-------------

Table 3 – Time of Concentration

Predeveloped TOC	5 min
Post-Developed TOC	5 min

Engineering Conclusions

The preceding methodologies and calculations presented indicate compliance with the current jurisdictional stormwater management codes and requirements. A summarized breakdown is presented below:

Water Quality

The proposed development will have raingardens sized with the Wilsonville/WES BMP sizing calculator. These facilities meet Wilsonville's development code.

Water Quantity

The proposed raingardens will have overflows into the rock sections below. Based on the factored infiltration rates, all water will be quickly infiltrated onsite. These systems will be registered with Oregon DEQ as UICs. These facilities meet Wilsonville's Development Code.

Downstream / Upstream Impacts

There are no upstream or downstream impacts created by this proposed development. All water is infiltrated onsite.

100 year storm

The 100 year storm will be safely conveyed away from structures and may have minimal storage in the parking lot before being infiltrated into the ground.

Appendix A

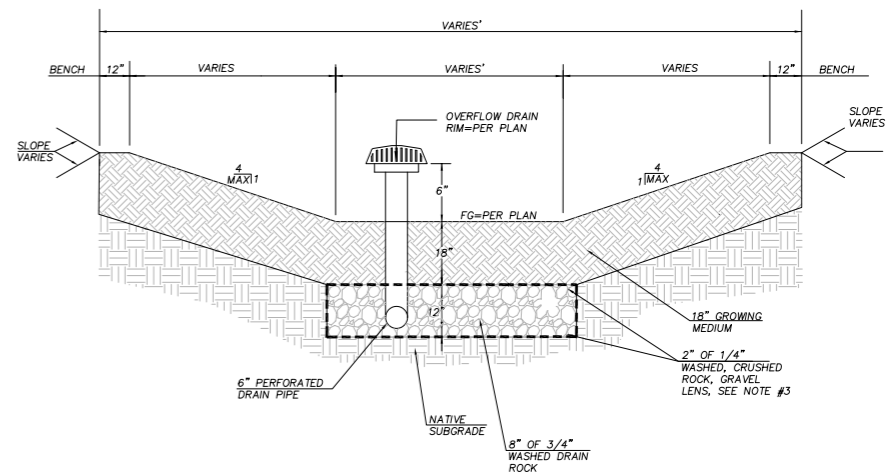
Stormwater Facility Details / Exhibits

Utility Plan

Basin Map

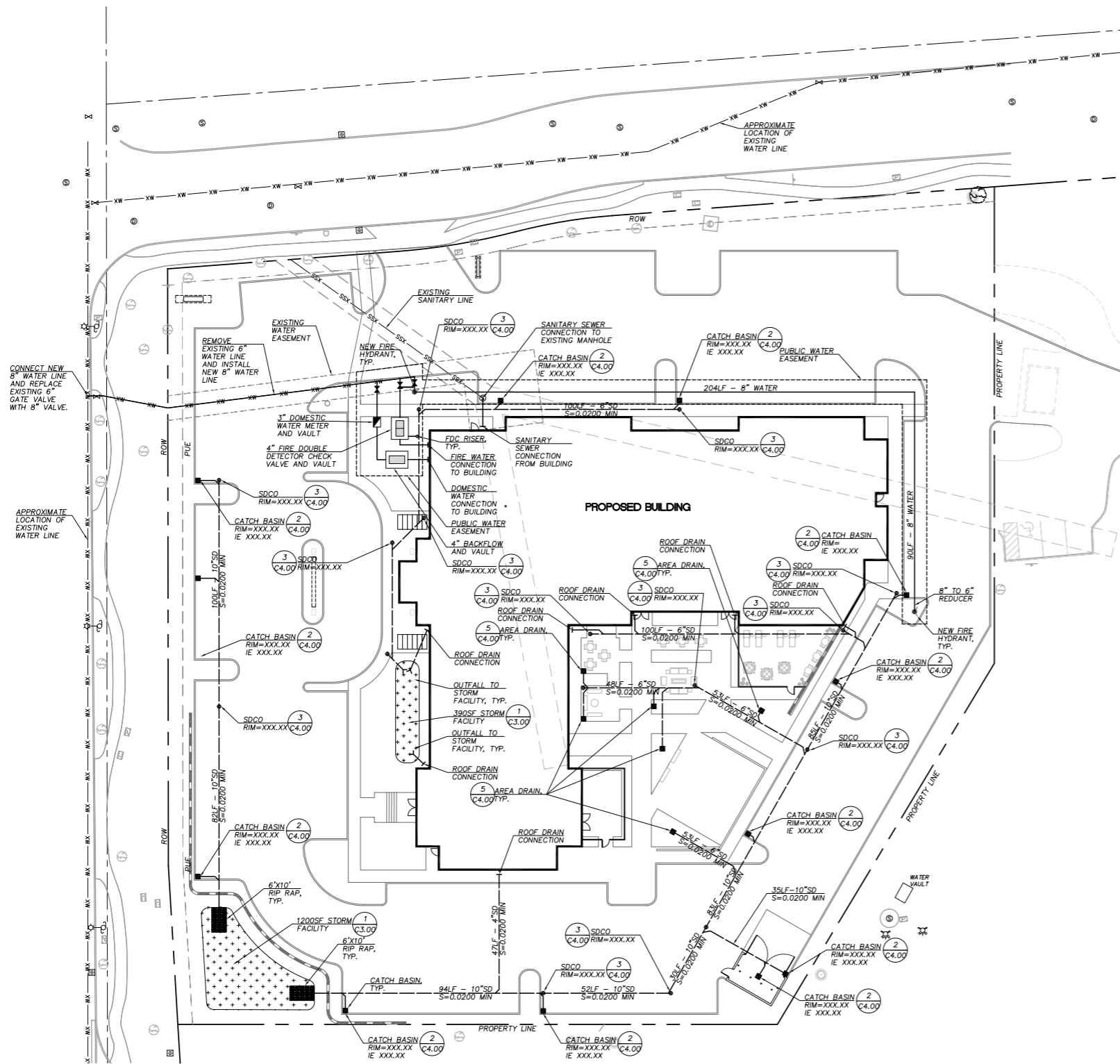
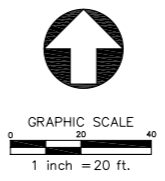
Stormwater Planter Detail

SHEET LEGEND	
ITEM	DESCRIPTION
SD	STORM
SS	SANITARY
—	DOMESTIC WATER
—	FIRE WATER
○	MANHOLE
●	CLEAN OUT
■	AREA DRAIN/CATCH BASIN
◻	WATER METER
◻	WATER/FIRE WATER VAULT

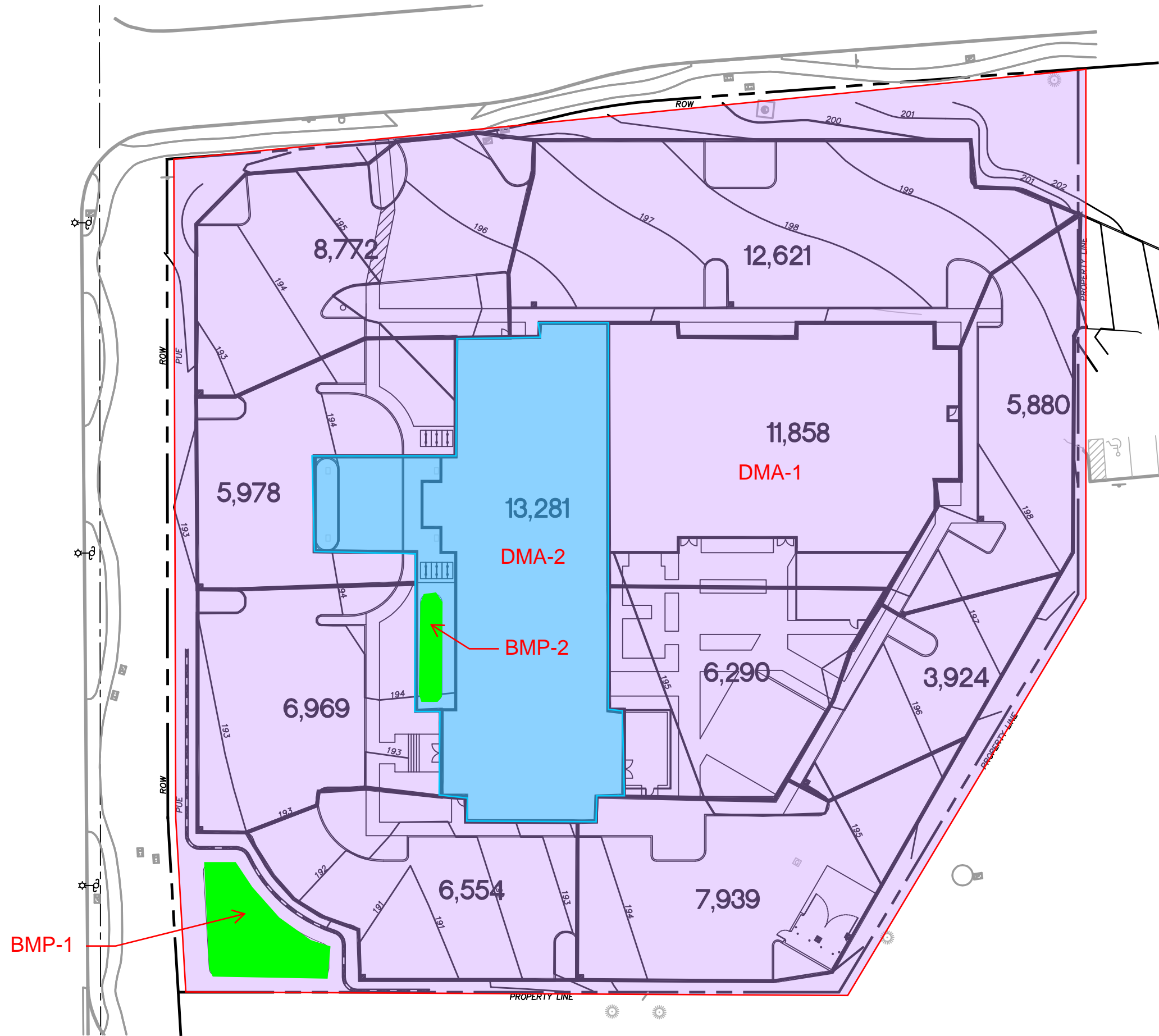


- NOTES:
- GROWING MEDIUM SHALL BE A SAND/LOAM/COMPOST 3-WAY MIX PER APPENDIX F OF THE PORTLAND STORMWATER MANAGEMENT MANUAL.
 - FILTER FABRIC CAN BE USED IN PLACE OF THE GRAVEL LENS. IF FILTER FABRIC IS USED, THE ENTIRE ROCK SECTION SHALL BE WRAPPED WITH THE FILTER FABRIC AND THE 8" OF DRAIN ROCK SHALL BE INCREASED TO 12".

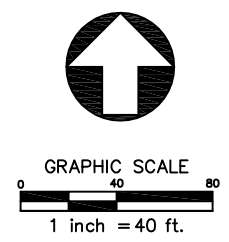
1 VEGETATED STORMWATER BASIN
 NTS



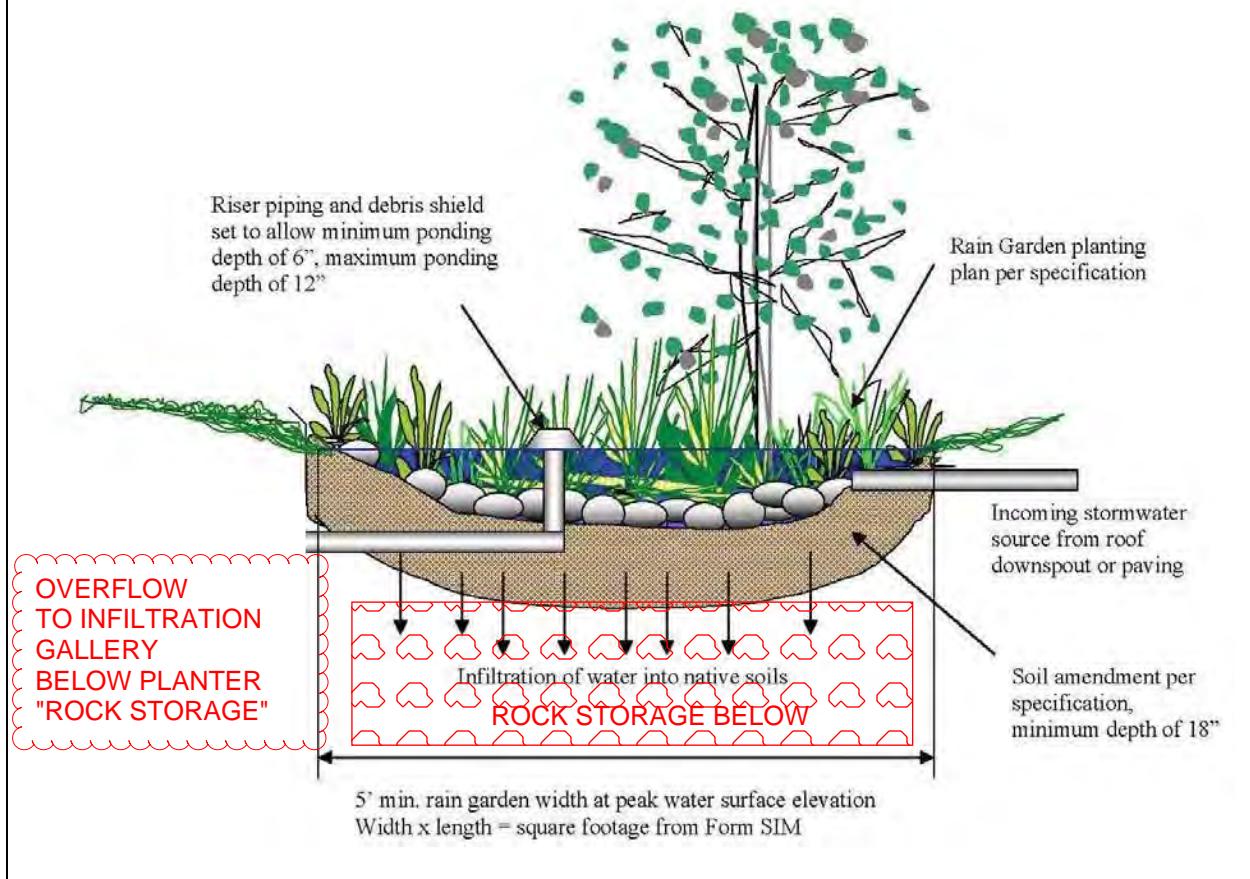
OVERALL UTILITY PLAN
 1"=20'



AREA BASIN MAP
1" = 40'



Infiltration Rain Garden



Infiltration Rain Gardens- Applicability

Infiltration rain gardens are used to manage stormwater flowing from all types of impervious surfaces, on private property and within the public right-of-way. Because they are generally more effective than filtration rain gardens at retaining large volumes of stormwater on-site, they shall be used instead of filtration rain gardens in circumstances when native soils infiltrate at least 0.5 inches per hour and they can be located at least 10 feet from building foundations and not immediately upslope of building structures.

Piping for Infiltration Rain Gardens

Piping per Plumbing Code requirements shall be used to direct stormwater from impervious surfaces to infiltration rain gardens, or if used within the public street right-of-way or within or adjacent to parking lot areas, stormwater may flow directly into them via curb openings. An overflow drain shall be constructed to allow at least 6 inches but not more than 12 inches of water to pond in the rain garden prior to overflow. On private property, this overflow drain and piping must meet Plumbing Code requirements and shall direct excess stormwater to an approved disposal point as identified on the subdivision's Public Works Permit drawings.

Appendix B

Support Calculations

WES - Wilsonville BMP Sizing Tool Report

INF - HydroCAD infiltration Calculations

WES BMP Sizing Report

Project Information

Project Name	Garden Inn - Wilsonville Hotel
Project Type	Commercial
Location	30800 SW Parkway Ave.
Stormwater Management Area	1263.64
Project Applicant	Shane O'hara
Jurisdiction	CCSD1NCSA

Drainage Management Area

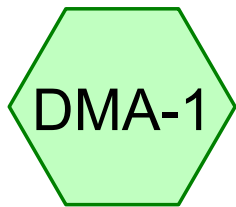
Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
DMA-1 East Building, Patio, and Parking	76,512	Grass	Conventional Concrete	B	BMP-1
DMA-2 West Building, Canopy, North Parking	25,512	Grass	Conventional Concrete	B	BMP-2

LID Facility Sizing Details

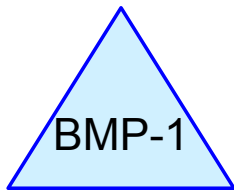
LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
BMP-1	WaterQuality	Rain Garden - Infiltration	A1	1,147.7	1,200.0	0.0
BMP-2	WaterQuality	Rain Garden - Infiltration	A1	382.7	390.0	0.0

Pond Sizing Details

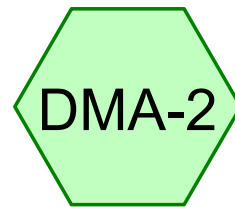
1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only
2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).
3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.
4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.



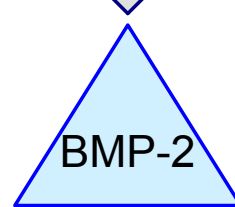
East Building, Patio,
Parking



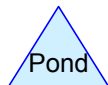
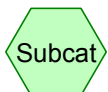
East Building, Patio, and
Parking



West Building, Canopy,
and North Parking



West Building, Canopy,
North Parking



Wilsonville Hotel

Prepared by Hewlett-Packard Company

HydroCAD® 10.00-15 s/n 09142 © 2015 HydroCAD Software Solutions LLC

WV - Hotel Planter Rock Seciton Infiltration
Type IA 24-hr 10 YEAR Rainfall=3.40"

Printed 5/26/2017

Page 2

Summary for Subcatchment DMA-1: East Building, Patio, Parking

Runoff = 1.40 cfs @ 7.90 hrs, Volume= 0.464 af, Depth= 3.17"

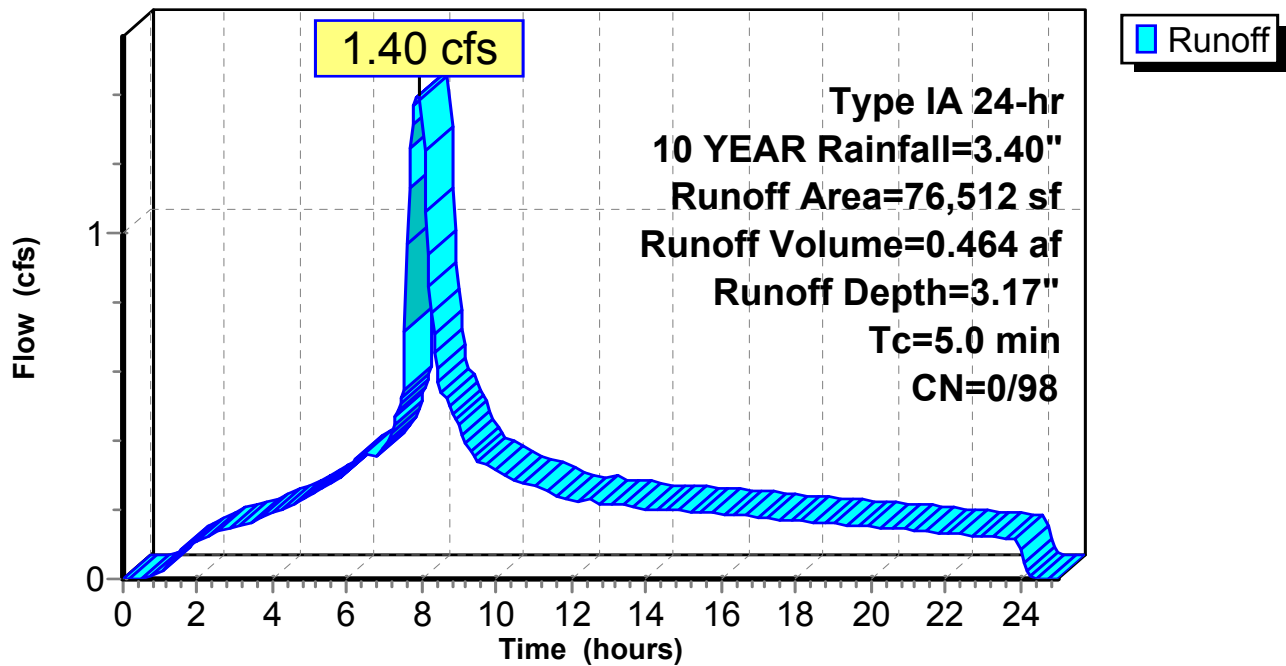
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-25.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 YEAR Rainfall=3.40"

Area (sf)	CN	Description
* 76,512	98	
76,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment DMA-1: East Building, Patio, Parking

Hydrograph



Wilsonville Hotel

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WV - Hotel Planter Rock Seciton Infiltration
Type IA 24-hr 10 YEAR Rainfall=3.40"

Printed 5/26/2017

Page 3

Summary for Subcatchment DMA-2: West Building, Canopy, and North Parking

Runoff = 0.47 cfs @ 7.90 hrs, Volume= 0.155 af, Depth= 3.17"

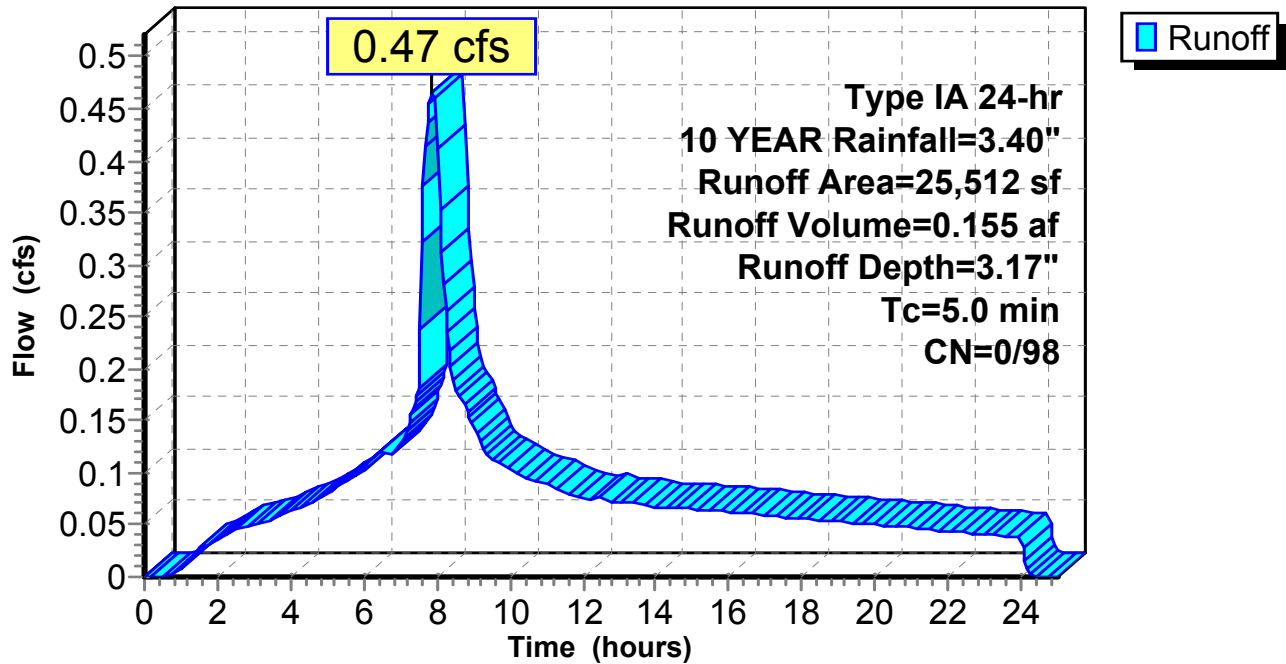
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-25.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 YEAR Rainfall=3.40"

Area (sf)	CN	Description
* 25,512	98	
25,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment DMA-2: West Building, Canopy, and North Parking

Hydrograph



Wilsonville Hotel

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WV - Hotel Planter Rock Seciton Infiltration
Type IA 24-hr 10 YEAR Rainfall=3.40"

Printed 5/26/2017

Page 4

Summary for Pond BMP-1: East Building, Patio, and Parking

Inflow Area = 1.756 ac, 100.00% Impervious, Inflow Depth = 3.17" for 10 YEAR event
Inflow = 1.40 cfs @ 7.90 hrs, Volume= 0.464 af
Outflow = 1.40 cfs @ 7.90 hrs, Volume= 0.464 af, Atten= 0%, Lag= 0.0 min
Discarded = 1.40 cfs @ 7.90 hrs, Volume= 0.464 af

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 100.01' @ 7.90 hrs Surf.Area= 1,200 sf Storage= 4 cf

Plug-Flow detention time= 0.1 min calculated for 0.464 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (664.8 - 664.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	396 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,200 cf Overall x 33.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	1,200	0	0
101.00	1,200	1,200	1,200

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	52.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.44 cfs @ 7.90 hrs HW=100.01' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 1.44 cfs)

Wilsonville Hotel

Prepared by Hewlett-Packard Company

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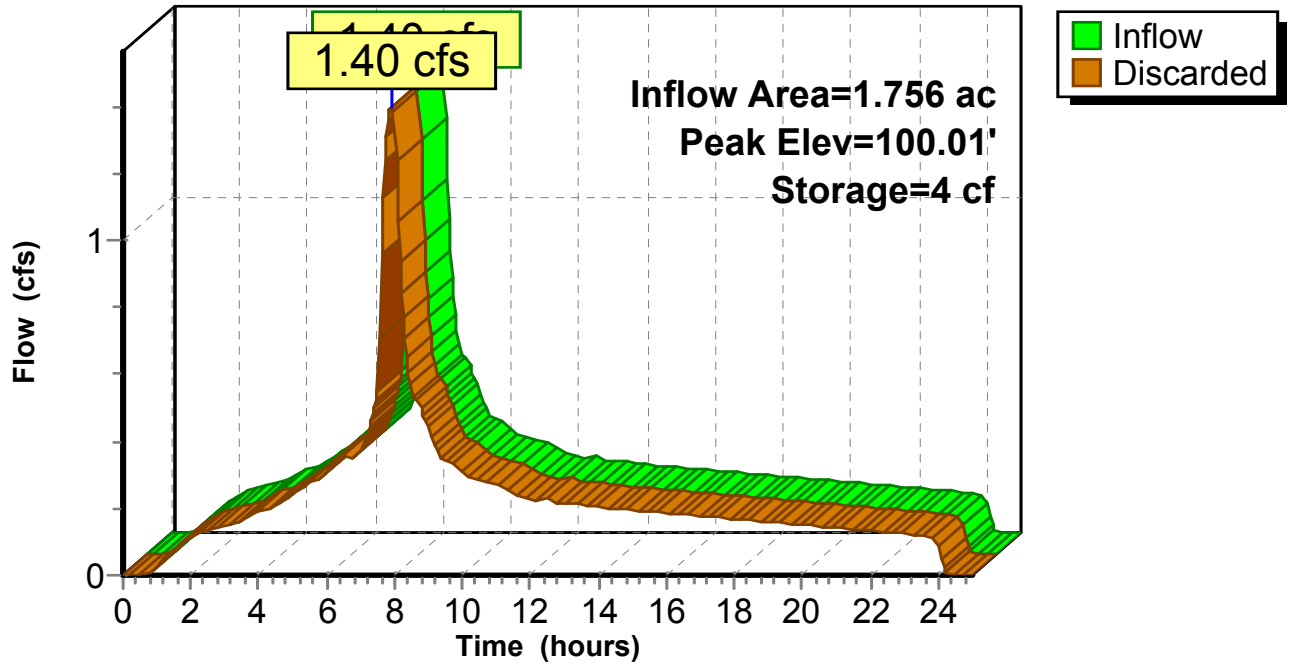
WV - Hotel Planter Rock Seciton Infiltration
Type IA 24-hr 10 YEAR Rainfall=3.40"

Printed 5/26/2017

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Pond BMP-1: East Building, Patio, and Parking

Hydrograph



Wilsonville Hotel

Prepared by Hewlett-Packard Company

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WV - Hotel Planter Rock Seciton Infiltration
Type IA 24-hr 10 YEAR Rainfall=3.40"

Printed 5/26/2017

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Summary for Pond BMP-2: West Building, Canopy, North Parking

Inflow Area = 0.586 ac, 100.00% Impervious, Inflow Depth = 3.17" for 10 YEAR event
Inflow = 0.47 cfs @ 7.90 hrs, Volume= 0.155 af
Outflow = 0.47 cfs @ 7.90 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.47 cfs @ 7.90 hrs, Volume= 0.155 af

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 100.01' @ 7.90 hrs Surf.Area= 390 sf Storage= 1 cf

Plug-Flow detention time= 0.1 min calculated for 0.155 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (664.8 - 664.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	129 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 390 cf Overall x 33.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	390	0	0
101.00	390	390	390

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	52.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.47 cfs @ 7.90 hrs HW=100.01' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.47 cfs)

Wilsonville Hotel

Prepared by Hewlett-Packard Company

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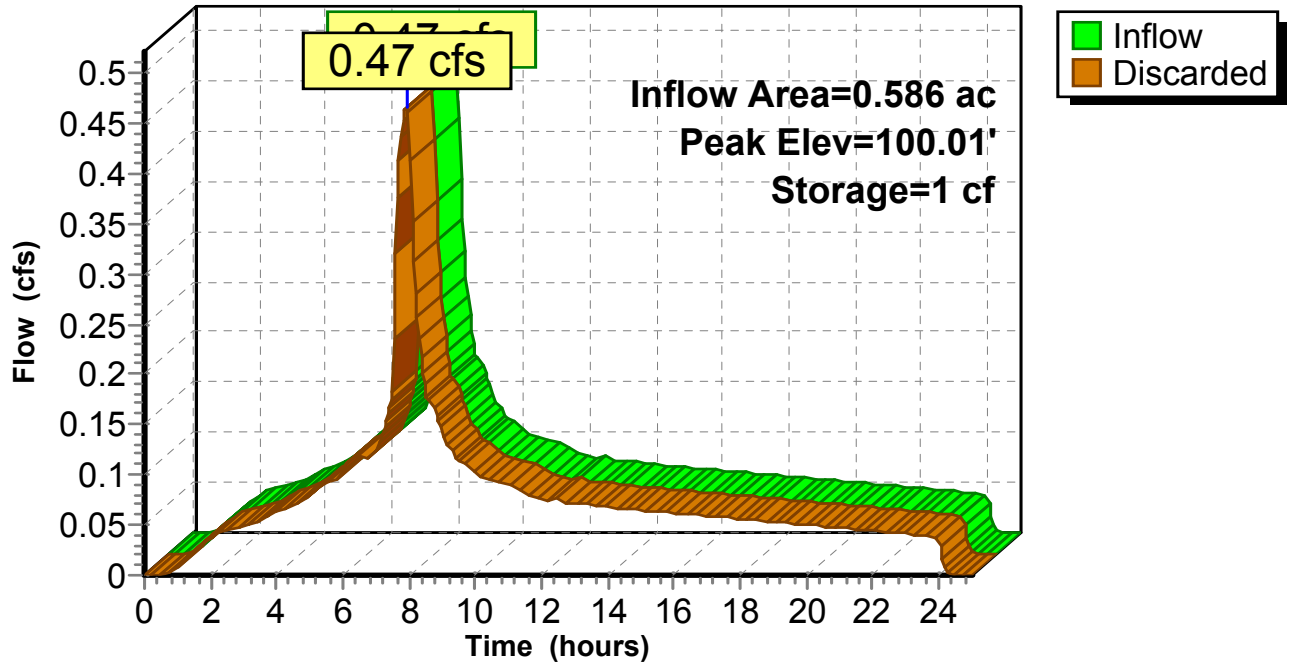
WV - Hotel Planter Rock Seciton Infiltration
Type IA 24-hr 10 YEAR Rainfall=3.40"

Printed 5/26/2017

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Pond BMP-2: West Building, Canopy, North Parking

Hydrograph



Appendix D

Additional Forms & Associated Reports

Stormwater Site Assessment

Site Assessment and Planning Checklist

Fig 1- Area Map

Fig 2- Survey

Fig 2.A- Hydrologic Soil Group

Fig 2.B- Depth to Water Table

Fig 2.D- FEMA Flood Zone

Fig 2.E- Existing Trees

Fig 2.G- Significant Resource Overlay Zone

Fig 2.H- Zoning

Fig 2.I- Layout and Paving Plan

Fig 2.J- Public Utilities

Fig 2.K- Gas Map

Report of Preliminary Geotechnical Investigation
& Infiltration Testing by Carlson Geotechnical,
July 21, 2016

SITE ASSESSMENT AND PLANNING CHECKLIST

1. Site Information

Contact Information	
Applicant Name	William Brannan
Business Name	Humber Design Group, Inc
Address	117 SE Taylor St #001 Portland, OR 97214
Phone	503-946-6632
Email	william.brannan@hdgpdx.com
Project Location	
Site Address	30800 SW Parkway Ave Wilsonville, OR 97070
Site Description	2.38 acre site. Middle of the site is occupied by a hotel; the northern portion is covered by parking areas, and the southern portion includes grass and landscaped areas, paths, and an outdoor swimming pool and pool house.
Major Drainage Basin	Middle Willamette <i>Attach Vicinity Map of Site (Fig 1)</i>
Project Type	
Type of Development	Hotel
Description	Hotel renovation. Includes renovation/demo and replacement of existing buildings, new indoor pool house, driveway and parking lot modifications, and parking lot repaving.
Size of Site	
Acreage	2.38 AC
# of tax lots	1

2. Site Assessment

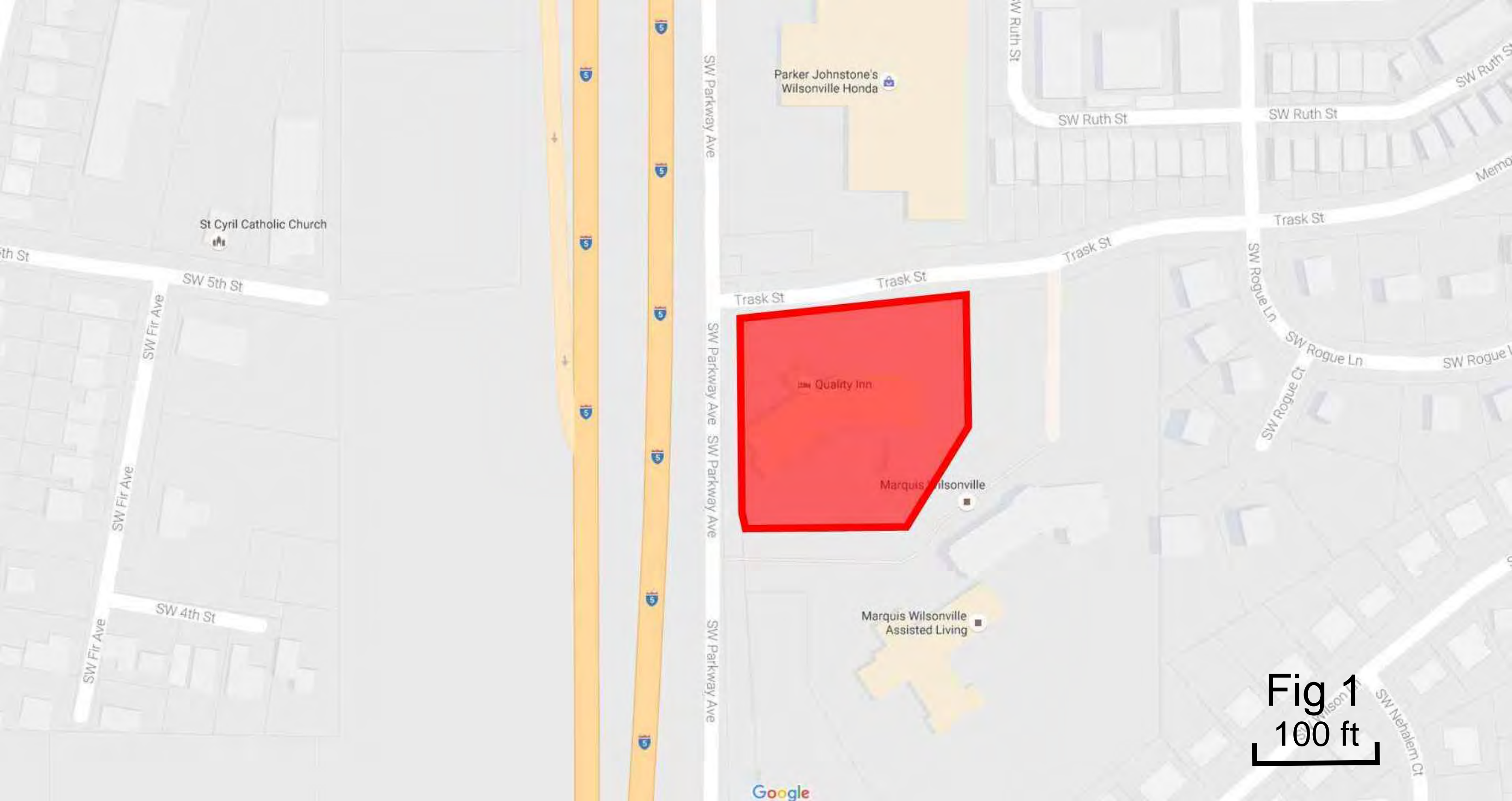
Topography	
<i>Attach aerial map with slopes marked. Fig 2</i>	
Soils and Groundwater	
NRCS Hydrologic Soil Type	B <i>Attach Hydrologic Soil Map-- Fig 2.A</i> <i>Attach Seasonal Groundwater Depth Evaluation - Fig 2.B</i>
Infiltration Assessment	
Test Type	Professional
Inches/Hour	158-270 in/hr <i>Attach documentation - see Geotech Report, Appendix D</i>
Hydrology--Conditions and Features	
Sensitive Area(s)	<i>indicate if present on site</i> N/A
Floodplain	N/A <i>Attach Map- streams, rivers and wetlands, FEMA floodplains, and existing drainage systems.</i> FEMA flood map: Fig 2.D
Downstream Conveyance	
Is adequate downstream capacity available?	All stormwater will be managed through infiltration and will not be conveyed downstream. <i>Prepare and attach Preliminary Drainage Report with analysis of upstream drainage area and downstream conveyance capacity, as required by section 301.3.02</i>
Existing Vegetation	
<i>Map trees and vegetation Fig 2.E</i>	

Natural Resource Areas and Setbacks	
Identify the Significant Resource Overlay Zone and other natural resource areas	The site is not within the Significant Resource Overlay Zone (Fig 2.G) <i>Assess and map buffers.</i>
Land Use and Zoning	
Existing Land Use Zoning designation(s):	PDC- Planned Development Commercial
	<i>See attached zoning map (Fig 2.H)</i>
Access and Parking	
Amount of required parking onsite Area of required parking onsite	Site includes 103 planned parking spaces. Total planned parking lot area is 6,200 sf. <i>Attach map; delineate proposed access points for all transportation models (Fig 2.I)</i>
Utilities to Site and Surrounding Area	
Stormwater Management Facilities	<i>Mark all that apply and attach maps</i> X (Fig 2.J)
Storm Conveyance	X (Fig 2.J)
Sewer	X (Fig 2.J)
Water	X (Fig 2.J)
Wells	
Drywells	X (Fig 2.J)
On-site septic systems	X (Fig 2.J)
Electricity	
Phone/cable	
Gas	X (Fig 2.K)
Public storm system/facility downstream	

3. Site Planning Design Objectives	
<i>Attach Preliminary Site Plan (See Utility Plan, Appendix A)</i>	
Preserve Existing Natural Resources	
Show the Significant Resource Overlay Zone and other natural resource areas on the site plan.	
Minimize Site Disturbance	
Delineate Protection areas on site plan for areas to remain undisturbed during construction.	
Minimize Soil Compaction	
Delineate and note temporary fencing on site plan for proposed infiltration facilities, vegetated stormwater management facilities, and re-vegetation areas.	
Minimize Imperviousness	
Complete and attach Impervious Area Threshold Determination Form (Fig 3)	
Delineate impervious reduction methods on site plan	

4. Proposed Stormwater Management Strategy	
	Mark all that Apply:
LID facilities to the MEP All onsite infiltration including retention of the 10-year storm even LID facilities and infiltration are limited by the following conditions Stormwater management facility to be located on fill Steep slopes High groundwater Contaminated soils Conflict with required source controls (Section 301.12.00) <i>include a geotechnical analysis of the site and report</i>	X X See Fig 2.C
Check Minimum Facility Size Required	
A. Surface area of onsite LID facility, as determined by BMP Sizing Tool or Engineered Method: B. Calculate MEP surface area of onsite LID facility for sites with limiting conditions: total new/redeveloped impervious area (SF) x 0.10 = C. Required surface area - smaller of [A] or [B] D. Proposed LID facility surface area: must be equal to or larger than [C]	1530.4 SF 10,361 SF 1530.4 SF 1590 SF

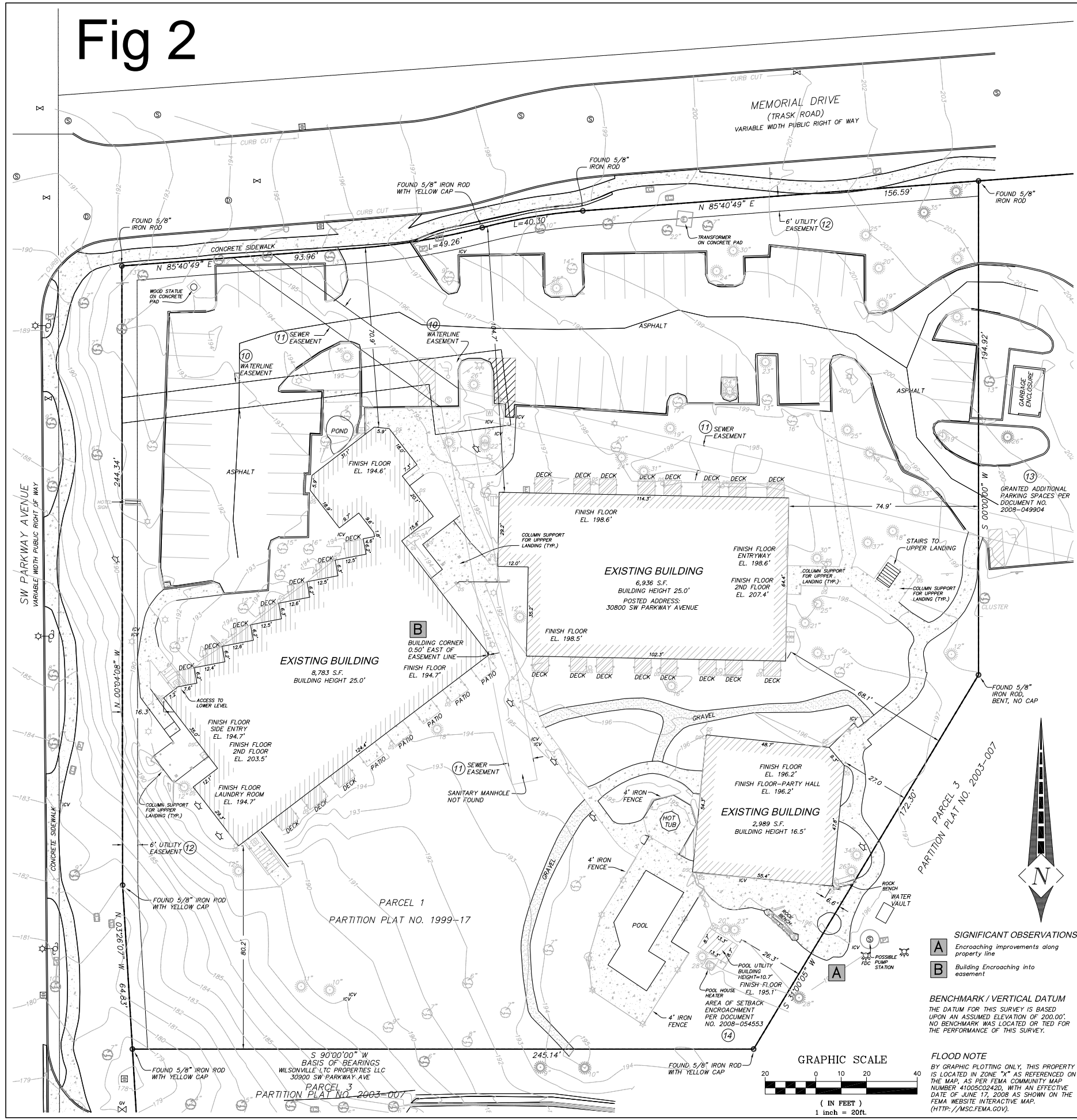
5. Facility Selection/Sizing	
Proposed Facility Type(s)	
<i>Check all that apply, attach output from BMP Sizing Tool application, and show proposed facilities on Preliminary Site Plan</i>	
Infiltration Stormwater Planter Filtration Stormwater Planter Infiltration Rain Garden Filtration Rain Graden Vegetated Filter Strip Vegetated Swale Detention Pond	LID Facilities 2 See Utility Plan
Infiltration Trench Manufactured Treatment Technology Underground Detention Tank Other:	Other Stormwater Management Facilities as approved:



Quality Inn
Marquis Wilsonville

Fig 1
100 ft

Fig 2



RECORD DESCRIPTION:

Parcel 1, PARTITION PLAT NO. 1999-017, in the City of Wilsonville, County of Clackamas and State of Oregon.

The land shown in the survey is the same as described in Chicago Title Insurance Company of Oregon Preliminary Title Report Order No. 472515529645PP-CT50, with an effective date of December 10, 2015.

SURVEYORS NOTES

- Survey as shown was prepared from a legal description as contained in Chicago Title Insurance Company of Oregon Preliminary Title Report Order No. 472515529645PP-CT50, with an effective date of December 10, 2015. This survey is reissued to include site contours, no updated Title Report information was provided.
- Some features shown on this plat may be shown out of scale for clarity.
- Dimensions on this plat are expressed in feet and decimal parts thereof unless otherwise noted. Bearings are referred to an assumed meridian and are used to denote angles only. Monuments were found at points where indicated.
- The basis of bearings for this survey is S 90°00'00" W, along the South line of Parcel 1 of Partition Plat No. 1999-017, Clackamas County Plat Records.
- There are 56 regular striped parking spaces and 2 handicap designated parking spaces, for a total of 58 parking spaces on the subject property. Document No. 2008-049904 grants subject property not more than forty (40) parking spaces, one being a handicap space.
- At the time of the ALTA survey there were no known changes in street right-of-way lines either completed or proposed.
- At the time of the ALTA survey there was no observable evidence of site use as a solid waste dump, sump or sanitary landfill.
- The subject property has access to Memorial Drive (public right of way) as shown.
- At the time of the ALTA survey there was no observable evidence of the site having cemeteries, gravesites, or burial grounds (i) disclosed in the Record Documents provided to the surveyor, or (ii) observed in the process of conducting the survey.
- No division or party wall exists or is designated by client with respect to adjoining properties.
- At the time of the ALTA Survey, there was no observable evidence of street or sidewalk construction or repair.
- Gross Land Area of property = 103,650 SF or 2.38 acres.
- At the time of the ALTA survey there was no observable evidence of current earth moving work, building construction, or building additions.
- At the time of the ALTA survey there was no observable evidence of wetlands on the site.

ITEMS, EASEMENTS, AND ENCUMBRANCES:

Please refer to the title report noted in Surveyor's Note No. 1 for all items concerning agreements, liens, waivers, assessments, leases, taxes, and other matters of record which do not reflect survey matters and are not listed below. The following items were listed in the Title Report supplied by the client and are listed here with my comment.

As per Title Report Order No. 472515529645PP-CT50, from Chicago Title Insurance Company of Oregon, with an effective date of December 10, 2015.

- The reservation of minerals and geothermal resources, together with the right to make such use of the surface as may be reasonably necessary for prospecting for, exploring for, mining and extracting said minerals, as reserved and more fully set forth and described in deed from The State of Oregon, by and through its Department of Transportation;
Recorded: March 29, 1994
Recorder's Fee No.: 94-26309
Exception is BLANKET in nature, and is not plottable
- Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in Deed:
Recorded: March 29, 1994
Recorder's Fee No.: 94-26309
Exception is BLANKET in nature, and is not plottable
- Limited access provisions contained in Deed to the State of Oregon, by and through its State Highway Commission, which provides that no right or easement of right of access to, from or across the State Highway other than expressly therein provided for shall attach to the abutting property:
Recorded: March 29, 1994
Recorder's Fee No.: 94-26309
Exception is BLANKET in nature, and is not plottable
- An easement created by instrument, including the terms and provisions thereof:
Recording Date: February 9, 1999
Recording No: 99-013751
In Favor Of: City of Wilsonville
For: Waterline
Affects: A 10 foot wide strip through said premises
Note: Said easement is also delineated on the recorded Partition Plat No. 1999-017.
- An easement created by instrument, including the terms and provisions thereof:
Recording Date: February 9, 1999
Recording No: 99-013752
In Favor Of: City of Wilsonville
For: Sanitary Sewer Line
Affects: A 10 foot wide strip through said premises
Note: Said easement is also delineated on the recorded Partition Plat No. 1999-017.
- Easements as dedicated or delineated on the recorded Partition Plat No. 1999-017;
For: Utilities
Affects: Six feet in width along the Westerly and Northerly boundary
- License (Parking Lot Agreement), including the terms and provisions thereof:
Recording Date: March 7, 2002
Recording No: 2002-022228
As amended by Extension of License (Parking Lot Agreement):
Recording Date: July 14, 2008
Recording No: 2008-049904
Affects subject site, gives access to 40 parking spaces on adjacent property. Specific parking spaces not designated in document
- Matters of encroachments into building setback limits, as disclosed in deed to BHC BWLOR, LLC, an Oregon limited liability company:
Recording Date: August 1, 2008
Recording No: 2008-054553
Affects SE corner of subject property



ZONING INFORMATION

Note:
No zoning information provided by insurer, however the following information was found on the City of Portland official website
Current Zone Designation:
PDC - Planned Development Commercial
Setbacks:
Minimum Building Setbacks:
-Front Yard Setback: None required except when front yard abuts a more restrictive district, when front yard abuts a more restrictive district, setbacks shall be the same as the abutting district.
-Side Yard Setback: None required except when front yard abuts a more restrictive district, when front yard abuts a more restrictive district, setbacks shall be one and one-half (1 1/2) times the setback required for the abutting tract.
-Rear Yard Setback: None required except when front yard abuts a more restrictive district, when front yard abuts a more restrictive district, setbacks shall be the same as the abutting district.
Maximum Building Height:
35 feet, unless taller buildings are specifically allowed in zone.

LEGEND:

Some Symbols shown may not be used on map

DECIDUOUS TREE	UTILITY AND LIGHT POLE
EVERGREEN TREE	GUY WIRE
STORM SEWER MANHOLE	TRAFFIC SIGNAL POLE
SANITARY SEWER CLEANOUT	ELECTRICAL POWER PEDESTAL
CATCH BASIN	COMMUNICATIONS PEDESTAL
SANITARY SEWER MANHOLE	COMMUNICATIONS MANHOLE
WATER VALVE	OVERHEAD LINE
WATER METER	GAS LINE
FIRE HYDRANT	ELECTRICAL LINE
BOLLARD	COMMUNICATIONS LINE
GAS VALVE	SANITARY SEWER LINE
GAS METER	STORM DRAIN LINE
SIGN	WATER LINE
MAILBOX	FENCELINE
UTILITY POLE	ELECTRIC RISER
LIGHT POLE	UTILITY RISER
ELECTRIC METER	HEAT PUMP
DOWN SPOUT TO STORM SYSTEM	IRRIGATION CONTROL VALVE
MONITORING WELL	GROUND LIGHT
FOUND 5/8" IRON ROD	

SIGNIFICANT OBSERVATIONS

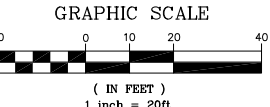
- A** Encroaching improvements along property line
- B** Building Encroaching into easement

BENCHMARK / VERTICAL DATUM

THE DATUM FOR THIS SURVEY IS BASED UPON AN ASSUMED ELEVATION OF 200.00'. NO BENCHMARK WAS LOCATED OR TIED FOR THE PERFORMANCE OF THIS SURVEY.

FLOOD NOTE

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE "X" AS REFERENCED ON THE MAP, AS PER FEMA COMMUNITY MAP NUMBER 41005C0242D, WITH AN EFFECTIVE DATE OF JUNE 17, 2008 AS SHOWN ON THE FEMA WEBSITE INTERACTIVE MAP. (HTTP://MSC-FEMA.GOV.)



ALTA/ACSM LAND TITLE SURVEY:

Project Name: Quality Inn
Based upon Title Commitment Order No. 472515529645PP-CT50 of Chicago Title Insurance Company of Oregon bearing an effective date of December 10, 2015

Surveyor's Certification
To: Zhihua Yu and Meiling Jiang, and Chicago Title Insurance Company of Oregon:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 6a, 7a, 7b1, 7c, 8, 9, 11a, 13, 14, 16, 17, 18, 19, and 21 of Table A thereof. The field work was completed on March 29, 2016. Addition survey for contours was completed on August 3, 2016.

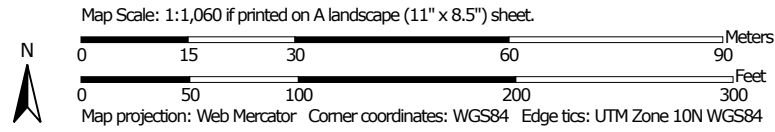
SIGNED ON:
Toby G. Bolden
Registered Land Surveyor No.: 60377LS
In the State of Oregon
Date of Survey: March 31, 2016
Date of Last Revision: August 11, 2016

REGISTERED PROFESSIONAL LAND SURVEYOR
TOBY G. BOLDEN
60377LS
RENEWS: DECEMBER 31, 2017

CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE., SUITE 120
OREGON CITY, OREGON 97045
PHONE 503.650.0188 FAX 503.650.0189
PLOTTED P: \CHA064 (CHA062) - Wilsonville Hotel\7 - CAD Drawings\CHA064 - Sur

Fig 2.A

Hydrologic Soil Group—Clackamas County Area, Oregon
(Wilsonville Hotel)



MAP LEGEND

Area of Interest (AOI)









Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 10, Sep 18, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Clackamas County Area, Oregon (OR610)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
76B	Salem silt loam, 0 to 7 percent slopes	B	3.8	100.0%
Totals for Area of Interest			3.8	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

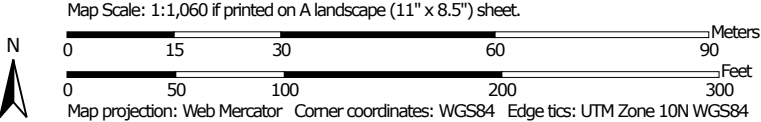
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified





























Tie-break Rule: Higher

Fig 2.B

Depth to Water Table—Clackamas County Area, Oregon
(Wilsonville Hotel)



MAP LEGEND

Area of Interest (AOI)	 Not rated or not available
Area of Interest (AOI)	
Soils	Water Features
Soil Rating Polygons	 Streams and Canals
 0 - 25	Transportation
 25 - 50	 Rails
 50 - 100	 Interstate Highways
 100 - 150	 US Routes
 150 - 200	 Major Roads
 > 200	 Local Roads
 Not rated or not available	Background
	 Aerial Photography
Soil Rating Lines	
 0 - 25	
 25 - 50	
 50 - 100	
 100 - 150	
 150 - 200	
 > 200	
 Not rated or not available	
Soil Rating Points	
 0 - 25	
 25 - 50	
 50 - 100	
 100 - 150	
 150 - 200	
 > 200	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 10, Sep 18, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Depth to Water Table— Summary by Map Unit — Clackamas County Area, Oregon (OR610)				
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
76B	Salem silt loam, 0 to 7 percent slopes	>200	3.8	100.0%
Totals for Area of Interest			3.8	100.0%

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

10-0469P
1/2007

PANEL
0050G 41005C0242D
/2000 eff. 6/17/2008

PANEL
41071C0275D
eff. 3/2/2010

PANEL
41067C0625E
eff. 11/4/2016

AREA OF MINIMAL FLOOD HAZARD Zone X

Fig 2.D

- Flood Hazard Zones
- 1% Annual Chance Flood Hazard
 - Regulatory Floodway
 - Special Floodway
 - Area of Undetermined Flood Hazard
 - 0.2% Annual Chance Flood Hazard
 - Future Conditions 1% Annual Chance Flood Hazard
 - Area with Reduced Risk Due to Levee

Zone X Area of Minimal Flood Hazard





SW Parkway Ave

SW Parkway Ave

Trask St

Trask St

Trask St

Trask St

Quality Inn

Google

Fig 2.E
Existing Trees

SROZ

Significant Resource Overlay Zone
4/29/09

- SROZ
- SITE

Fig 2.G



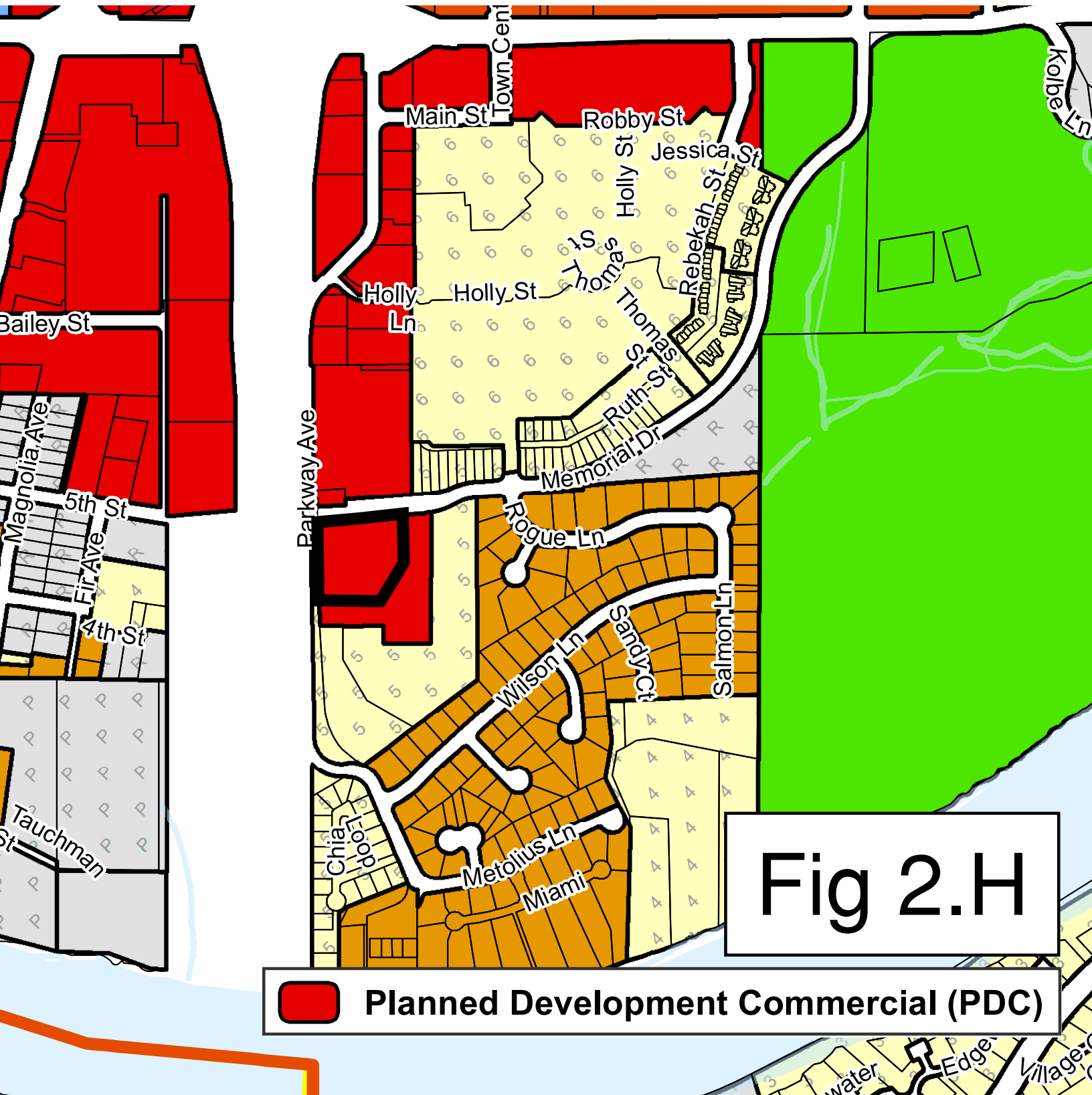
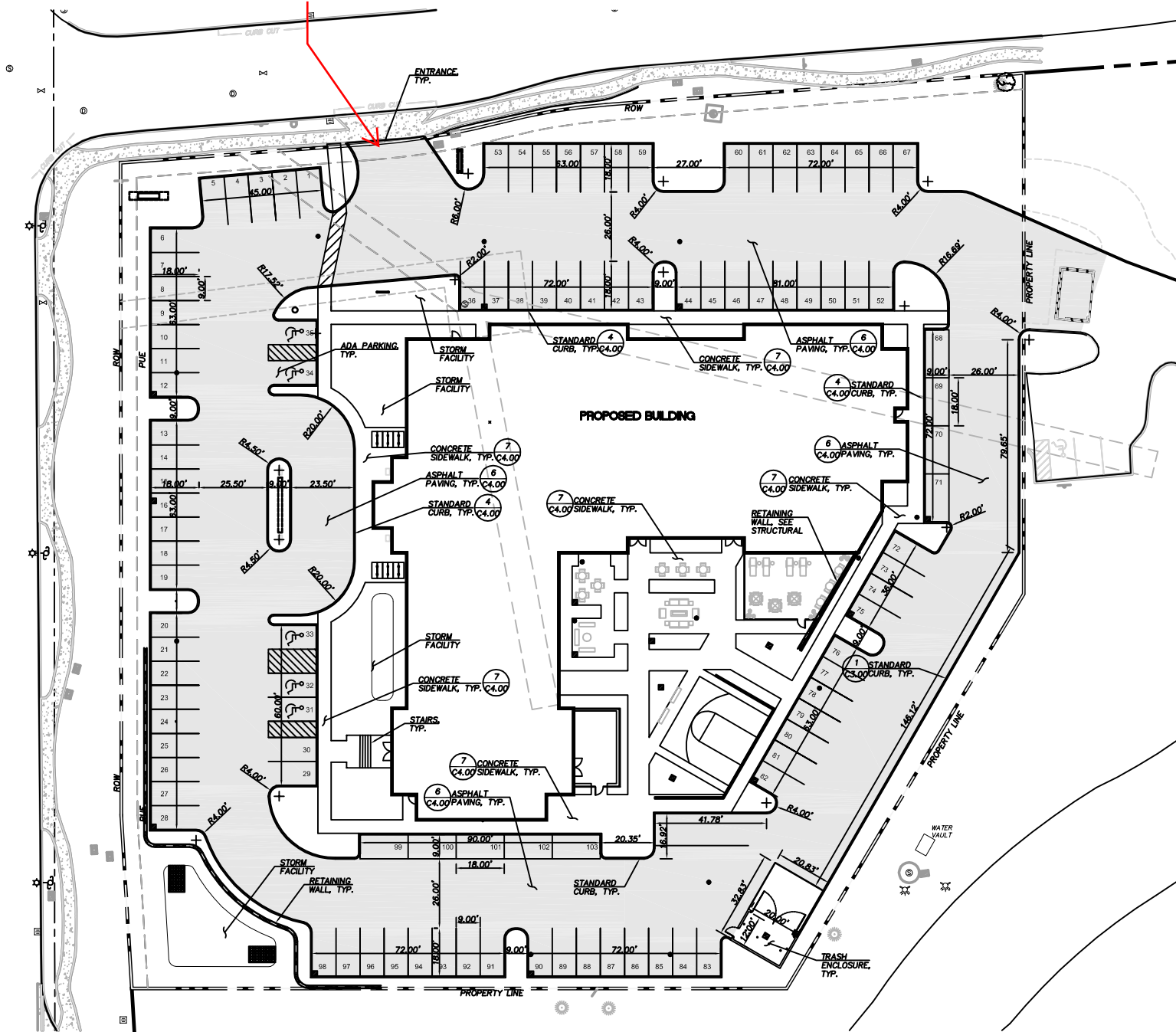


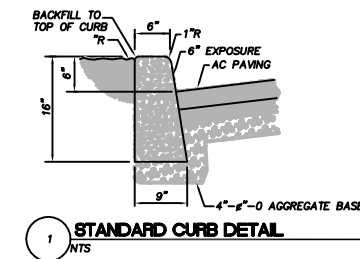
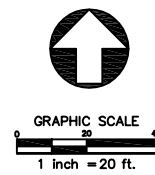
Fig 2.1

Parking entry access point



OVERALL LAYOUT AND PAVING PLAN
1"=20'

ITEM	DESCRIPTION
	ASPHALT PAVEMENT (STANDARD)
	STANDARD CURB
	RETAINING WALL



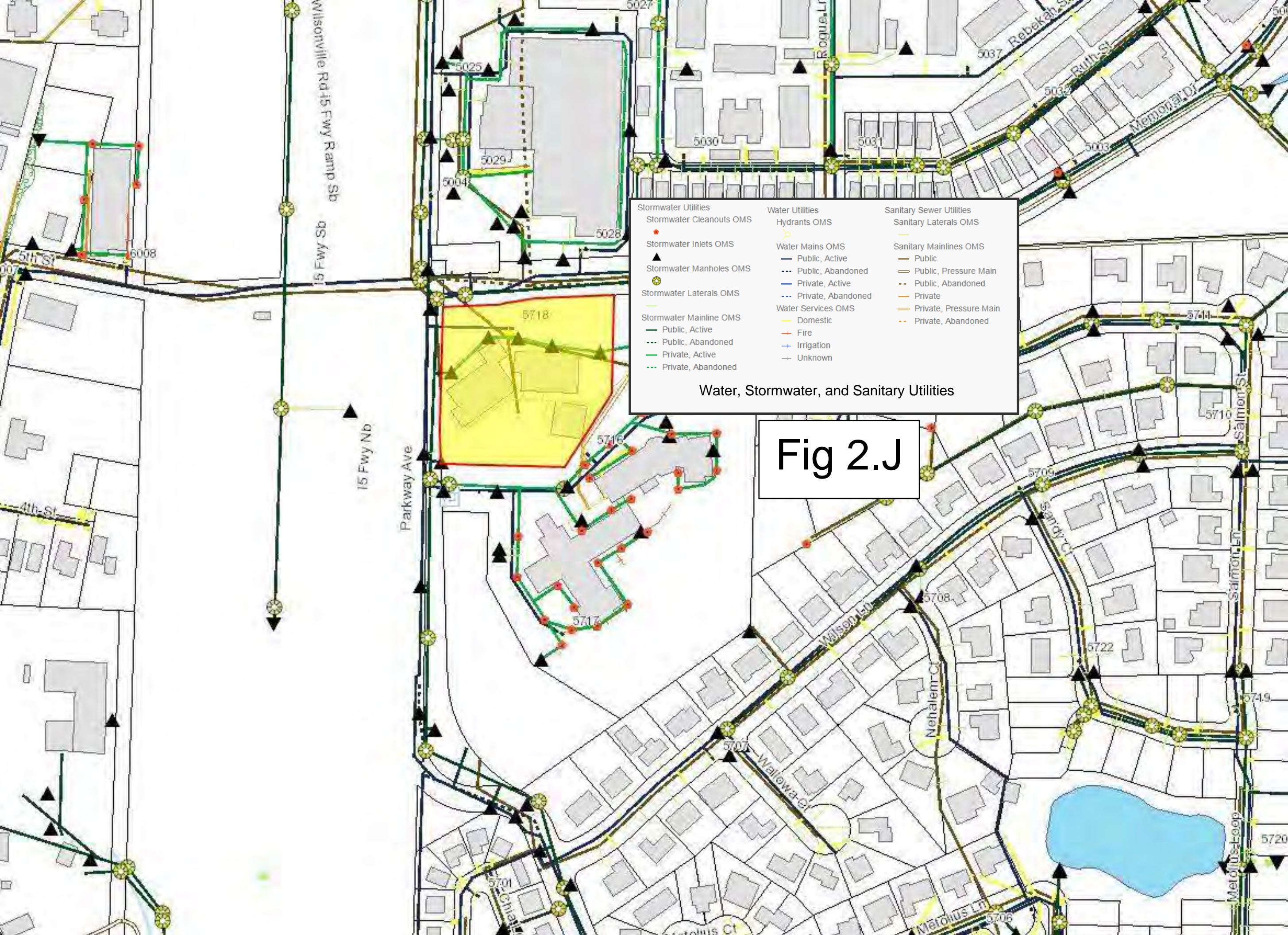
CABLETON HART ARCHITECTURE P.C.
1800 SW TIGHE BOULEVARD #2000 HILLSBORO, OREGON 97124
503-248-2282 WWW.CHAHARCHITECT.COM

WILSONVILLE HILTON GARDEN INN
30800 SW PARKWAY AVE. WILSONVILLE, OREGON
SITE DEVELOPMENT AND DESIGN REVIEW

OVERALL LAYOUT AND PAVING PLAN
PROJ. NO. 16027
05.22.2017



C2.00







Water, Stormwater, and Sanitary Utilities

Fig 2.J

Fig 2.K

Legend

-  Meter Location w/Address
-  Gas Pipe
-  City Limit
-  Plat Index

PORTLAND SALEM EXPRESSWAY

MEMORIAL DRIVE

ROGUE CT.

5' Utility Ease. along all Sides

WILSON

(W) 2"

(P) 2"

(P) 4"

(D) 2"

(P) 1-1/4"

1-061-020
1-062-020

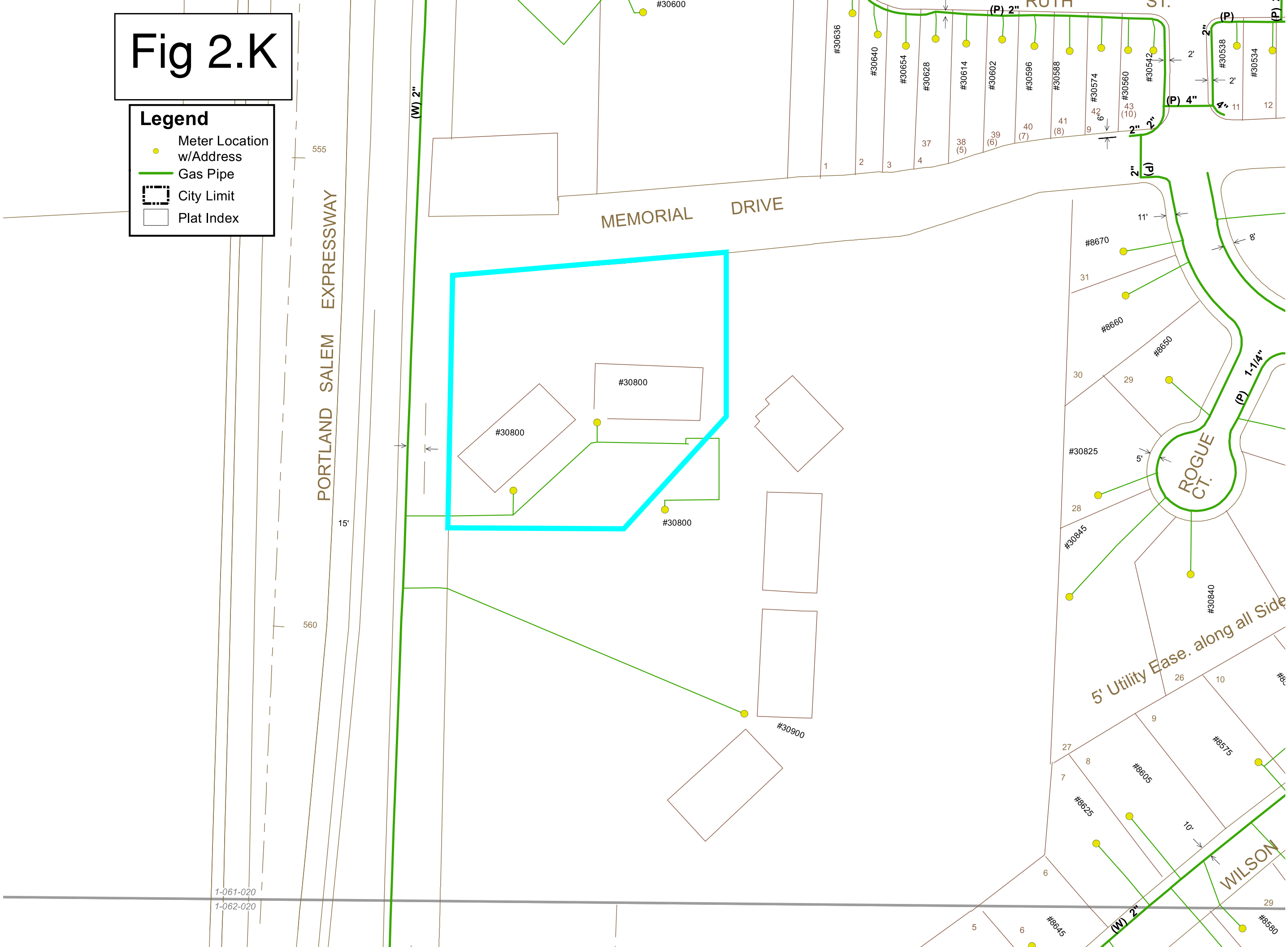


Fig 3

IMPERVIOUS AREA THRESHOLD DETERMINATION FORM

1. TOTAL NEW AND REPLACED IMPERVIOUS AREA, SF: Box 1 **103,614 SF**

2. APPLY IMPERVIOUS REDUCTION METHODS:

2a. Pervious Pavement, SF: Box 2a **N/A**

2b. Green Roof, SF: Box 2b **N/A**

2c. Tree Credit - Applies to NON single family residential developments only. NOTE: Maximum total tree credit allowed is 10% of the Impervious Area in BOX 1:

New Trees

To receive credit, trees must be planted in excess of Planning Division (landscaping) requirements. New evergreen trees must be at least 6 feet tall at the time of planting and new deciduous trees must be at least 2-inch caliper (diameter at 4 feet high). Trees must be planted within 25-feet of ground-level impervious surfaces. New trees cannot be credited against rooftop surfaces or pervious pavement. New trees must be selected from tree species included in Appendix A unless otherwise approved.

Number of new trees meeting criteria x 100 sf each, SF: Box 2c **N/A**

2d. Existing Tree Canopy

To receive credit, existing tree canopy must be preserved during and after construction (recorded on property deed). Existing trees cannot be credited against rooftop surfaces or pervious pavement. Minimum tree size to receive credit is 6-inch caliper. No credit will be given for existing trees located in vegetative buffers or other requirements of the Planning Division. Tree canopy is measured as the area under the tree drip-line and that is within 25 feet of ground-level impervious surfaces.

SF of existing tree canopy that meets criteria: Box 2d **N/A**

2e. Total Tree Credit (Box 2c + 2d), OR 10% of Box 1, whichever is SMALLER: Box 2e **N/A**

3. TOTAL IMPERVIOUS AREA REDUCTION, (Sum of Boxes 2a, 2b, and 2e), SF Box 3 **N/A**

4. PROPOSED IMPERVIOUS AREA, (Box 1 minus Box 3), SF (compare to thresholds): Box 4 **103,614 SF**

Impervious Area Threshold Determination Form

DRAWING NUMBER: ST-6000	DRAWN BY: SR	SCALE: N.T.S.
FILE NAME: ST-6000.DWG	APPROVED BY: NK	DATE: 10/10/14

CITY OF WILSONVILLE



PUBLIC WORKS STANDARDS

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**Report of
Preliminary Geotechnical Investigation
& Infiltration Testing
Quality Inn Motel Expansion
30800 SW Parkway Avenue
Wilsonville, Oregon**

CGT Project Number G1604408

Prepared for

Mr. Dave Kimmel
PDG Planning Design Group
12469 SE 41st Court
Portland, Oregon 97222

July 21, 2016

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**Report of
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30800 SW Parkway Avenue
Wilsonville, Oregon**

CGT Project Number G1604408

Dear Mr. Kimmel:

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our preliminary geotechnical investigation and infiltration testing for the proposed Quality Inn Motel Expansion project. The site is located at 30800 SW Parkway Avenue in Wilsonville, Oregon. We performed our work in general accordance with CGT Proposal GP7125, dated May 24, 2016. Written authorization for our services was provided on May 26, 2016.

This report is considered preliminary, as we have not reviewed final grading plans, finished floor elevations, and/or detailed structural information for the development. An addendum indicating that this report is final, and including supplemental recommendations, if warranted, can be issued after we have reviewed those items.

We appreciate the opportunity to work with you on this project. Please contact us at 503.601.8250 if you have any questions regarding this report.

Respectfully Submitted,

CARLSON GEOTECHNICAL



EXPIRES: 12/31/2016

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1.0 INTRODUCTION

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our preliminary geotechnical investigation for the proposed Quality Inn Motel Expansion project. The site is located at 30800 SW Parkway Avenue in Wilsonville, Oregon, as shown on the attached Site Location, Figure 1.

1.1 Project Description

CGT developed an understanding of the proposed project based on our correspondence and site meeting with our client on June 8, 2016. In addition, we reviewed the provided Site Plan prepared by Carleton Hart Architecture (CHA), dated June 30, 2016, as well as construction plans from the original building development entitled, "Resort & Apartment Complex – Phase 1 Development, Lodging / Coffee Shop," prepared by Glenn E Chilcote Associates, AIA, and dated March 31, 1986. Based on review of the provided plans and our correspondence, we understand the project is in preliminary design stages, but will likely include:

- Demolition and removal of the existing motel lobby, located at the north side of the existing west wing of the motel.
- Construction of a new lobby addition, connecting the existing east and west wings of the motel, a new covered drop-off area (porte cochere) in front (to the north) of the new lobby, and new east and west stairways. Although not shown on the provided site plan, we understand that a third-level addition will be constructed to the existing two-level east and west wings of the motel. At the time this report was issued, no structural loading information was provided. We anticipate the new structures and additions will be wood-framed and that no below-grade levels are proposed.
- Based on the above-referenced construction drawings from 1986, we understand the ground level of the existing east and west wing structures consists of crawl space foundations (i.e., a continuous perimeter foundation with continuous common wall foundations at approximately 14-foot, on-center spacing).
- Re-configuration of the existing parking lot and drive lanes, resulting in a total of 51 parking spaces and a turn-around drive lane as part of the covered drop-off area in front of the new lobby. We anticipate that the existing on-site asphaltic concrete (AC) pavements will be demolished and re-constructed as part of this work.
- We understand stormwater collected from hardscaped surfaces may be partially or completely infiltrated at the site in a new stormwater infiltration system. We understand the type, sizing, and location of the system has not been determined. Design of the infiltration system will rest with others. As part of this assignment, CGT performed two infiltration tests at the site at depths of about 5 feet below ground surface (bgs).
- Although no grading plans have been provided, we anticipate permanent grade changes at the site will be minimal (i.e., cuts and fills of less than 2 feet in depth).

1.2 Scope of Work

The purpose of our work was to explore subsurface conditions at the site in order to provide geotechnical recommendations for design and construction of the proposed development. Our scope of work included the following:

- Contact the Oregon Utilities Notification Center to mark the locations of public utilities within a 30-foot radius of our explorations at the site. CGT also subcontracted a private utility locating service to mark the locations of public and private utilities within a 30-foot radius of our explorations.
- Explore subsurface conditions at the site with the following field exploration program:
 - Advance eight machine-drilled borings to depths ranging from about 10 to 15 feet bgs.
 - Excavate three test pits to depths up to about 5 feet bgs.
 - Advance two hand auger borings to depths up to about 3 feet bgs.
 - Excavate seven hand-excavated test pits to depths up to about 3 feet bgs.
 - Perform two infiltration tests at the site in general accordance with the Encased Falling Head Test procedure described in Section B.2.04 (Appendix B) of the 2014 City of Wilsonville Public Works Standards. Results of our infiltration testing are presented in the attached Appendix A.
- Classify the materials encountered in the explorations in accordance with American Society for Testing and Materials (ASTM) Soil Classification Method D2488 (visual-manual procedure).
- Collect representative soil samples from within the explorations in order to perform laboratory testing and to confirm our field classifications.
- Perform laboratory testing on selected samples collected during our subsurface exploration.
- Provide a technical narrative describing surface and subsurface deposits, and local geology of the site, based on the results of our explorations and published geologic mapping.
- Provide a site vicinity map and a site plan showing the locations of the explorations relative to existing site features.
- Provide logs of the explorations, including results of laboratory testing on selected soil samples.
- Provide preliminary geotechnical recommendations for site preparation and earthwork.
- Provide preliminary geotechnical engineering recommendations for design and construction of shallow spread foundations, retaining walls, floor slabs, and flexible pavements.
- Provide recommendations for the Seismic Site Class, mapped maximum considered earthquake spectral response accelerations, and site seismic coefficients.
- Provide a qualitative evaluation of seismic hazards at the site, including liquefaction potential, earthquake-induced settlement and landsliding, and surface rupture due to faulting or lateral spread.
- Provide this written report summarizing the results of our preliminary geotechnical investigation, infiltration testing, and recommendations for the project.

2.0 SITE DESCRIPTION

2.1 Site Geology

Based on available geologic mapping¹ of the area, the site is underlain by Pleistocene catastrophic flood deposits originating from glacial outburst floods of Lake Missoula. The Pleistocene Lake Missoula catastrophic flood deposits were produced by the periodic failure of glacial ice dams, which impounded Lake Missoula between 21,000 and 12,000 years ago. Floodwaters raged through eastern Washington and through the Columbia River Gorge. Near Rainier, Oregon, the river channel was restricted, causing floodwaters to back up the Willamette Valley as far as Eugene. Floodwaters in the Portland area were as much as 400 feet deep, leaving only the tops of the tallest hills dry. The flood deposits are typically split into three different facies; the coarse-grained facies, the fine-grained facies, and the channel facies, which

¹ Ma, Madin, Duplantis, and Williams, 2012, Lidar-based Surficial Geologic Map and Database of the Greater Portland, Oregon, Area, Clackamas, Columbia, Marion, Multnomah, Washington, and Yamhill Counties, Oregon, and Clark County, Washington Oregon Department of Geology and Mineral Industries Open-File Report O-12-02.

consists of silts, sands, and gravels deposited within the flood channel. Coarse-grained Missoula flood deposits (Mfc) are mapped in the vicinity of the site, which typically consist of sand and gravel.

2.2 Site Surface Conditions

The approximate 2.4-acre site was bordered by SW Parkway Avenue to the west, SW Trask Street to the north, and existing, developed commercial properties to the south and the east. The site descended gently to the southwest, with an overall vertical relief of approximately 20 feet. At the time of our field investigation, the central portion of the site was occupied by the Quality Inn – Wilsonville Motel, consisting of two structures (east and west wings), a lobby, a fitness center, and an outdoor swimming pool. The south portion of the site consisted of grass, walking paths, and landscaped areas, while the north portion of the site consisted primarily of paved parking areas with several tall, coniferous trees. Site photographs taken at the time of our fieldwork are attached as Figure 3.

3.0 FIELD INVESTIGATION

CGT completed the field investigation between June 14 and 15, 2016. The field investigation consisted of eight drilled borings, three test pits, two hand auger borings, seven hand-excavated test pits, and two infiltration tests. The approximate exploration locations are shown on the attached Site Plan, Figure 2. The exploration locations shown therein were determined based on measurements from existing site features (existing building corners, etc.) and should be considered approximate.

3.1 Machine-Drilled Borings

Borings B-1 through B-8 were advanced to depths ranging from about 10.3 to 15.4 feet bgs on June 14, 2016, using mud-rotary drilling techniques with a CME-850XR track-mounted drill rig, provided and operated by our subcontractor, Western States Soil Conservation of Hubbard, Oregon. Upon completion, the borings were backfilled with granular bentonite. The surface at borings B-1, B-2, and B-6 through B-8 was patched with cold-patch asphalt.

Standard Penetration Tests (SPTs) were conducted within the drilled borings using a split-spoon sampler in general accordance with ASTM D1586. The SPT is performed by driving a 2-inch, outside-diameter, split-spoon sampler into the undisturbed formation located at the bottom of the advanced boring with repeated blows of a 140 pound, automatic hammer falling a vertical distance of 30 inches. The number of blows (N-value) required to drive the sampler the last 12 inches of an 18-inch sample interval is used to characterize the soil consistency or relative density. The SPTs were conducted at 2½- to 5-foot intervals to the termination depths of the borings. In addition, a larger diameter (3-inch outside diameter) split spoon sampler (Modified California [MCAL]) was used at selected depths in the drilled borings to obtain more representative samples in the predominately gravel soils. Aside from these differences, the sampling procedure was the same as the SPT. Blow counts obtained from the MCAL sampler are generally higher than those that would be obtained using a standard sampler. Correlations to SPT N-values have been developed for use with MCAL samplers.

The CME-850XR drill rig was equipped with a 140-pound, automatic hammer, which was used to conduct the SPTs. It should be noted automatic hammers generally produce lower SPT values than those obtained using a traditional safety hammer (cathead). According to the driller, the automatic hammer on the CME-850XR drill rig had hammer efficiency (ETR_{hammer}) of 88.5 percent, resulting in an efficiency factor of about 1.5. We have considered this in our description of soil relative density and in our evaluation of soil

strength and compressibility. Field SPT “raw” values that have not been adjusted for hammer efficiency, as well as N_{60} values that have been adjusted for hammer efficiency, are listed on the attached boring logs.

3.2 Test Pits

CGT excavated three test pits (TP-1 through TP-3) at the site on June 15, 2016, to depths of up to about 5 feet bgs. The test pits were excavated using a Takeuchi TB230 tracked excavator with an 18-inch wide toothed bucket, provided and operated by CGT. Upon completion of logging and infiltration testing, the test pits were loosely backfilled with the excavated materials.

3.3 Hand Auger Borings

CGT advanced two hand auger borings (HA-1 and HA-2) at the site on June 14, 2016, to depths of up to about 3 feet bgs. The hand auger borings were advanced using a 3-inch diameter hand auger provided and operated by CGT. The presence of shallow gravels and cobbles precluded advancing the hand auger borings beyond a maximum depth of about 3 feet bgs. Upon completion, the hand auger borings were loosely backfilled with the excavated materials.

In conjunction with the hand auger borings, we performed five dynamic cone penetrometer tests to depths of up to about 4 feet bgs. The dynamic cone penetrometer tests were performed using a Wildcat Dynamic Cone Penetrometer (WDCP) provided and operated by CGT. The WDCP test consists of driving 1.1-inch-diameter, steel rods with a 1.4-inch-diameter, cone tip into the ground using a 35-pound drop hammer with a 15-inch, free-fall height. The number of blows required to drive the steel rods is recorded for each 10 centimeters (3.94 inches) of penetration. The blow count for each interval is then converted to the corresponding Standard Penetration Test (SPT) “ N_{60} ” values, which are used to estimate the soil relative consistency for cohesive soils, or relative density for non-cohesive soils. Practical refusal of the WDCP was met at depths of about 2½ to 4 feet bgs due to the presence of coarse-grained particles (i.e. gravels and cobbles).

3.4 Infiltration Testing

CGT performed a total of two infiltration tests (IT-1 and IT-2) at the site on June 15, 2016. The results of the infiltration tests are presented in the attached Appendix A.

3.5 Hand-Excavated Test Pits

CGT completed seven hand-excavated test pits at the site on June 14 and 15, 2016, adjacent to the existing east and west wing buildings. The purpose of these excavations was to evaluate the dimensions (outer width and bearing depth) of the existing foundations and subgrade conditions. These excavations were completed using a narrow trenching shovel. Upon completion of the excavation, a ½-inch diameter foundation probe was used to establish the extents of the footing in order to measure the footing embedment depth, as well as the outer footing width. Upon completion, the excavations were loosely backfilled with the excavated materials. Results of the hand-excavated test pits are summarized in Section 6.0 of this report.

3.6 Soil Classification & Sampling

Members of CGT’s staff logged the soils observed within the explorations in general accordance with the Visual-Manual Procedure (ASTM D2488) and collected representative samples of the materials encountered. An explanation of the Visual-Manual Procedure is presented on the attached Soil Classification Criteria and Terminology, Figure 4. The soil samples were stored in sealable plastic bags and transported to our laboratory for further examination and testing. Our staff visually examined all samples returned to our

laboratory in order to refine the field classifications. Logs of the explorations are presented on the attached Exploration Logs, Figures 5 through 17. Surface elevations indicated on the logs were estimated based on the available topography on Metro's Regional Land Information System (RLIS) data available from MetroMap website². Elevation contours identified from the referenced utility were compared and appeared consistent with our site observations. Elevations shown on the logs should be considered approximate.

4.0 LABORATORY TESTING

Laboratory testing was performed on samples collected in the field to refine our initial field classifications and determine in-situ parameters. Laboratory testing included:

- Ten moisture content determinations (ASTM D2216).
- Two percentage-passing the U.S. Standard No. 200 Sieve tests (ASTM D1140).
- Two Atterberg limits (plasticity index) tests (ASTM D4318).

Results of the laboratory tests are shown on the attached Exploration Logs, Figures 5 through 17.

5.0 SUBSURFACE CONDITIONS

5.1 Subsurface Materials

The following describes each of the subsurface materials encountered at the site.

5.1.1 Asphaltic Concrete Pavement

Asphaltic concrete (AC) pavement was encountered at the surface of drilled borings located in existing paved parking areas (i.e., B-1, B-2, B-6, B-7, and B-8). We measured a typical AC pavement thickness of approximately 2 inches at each of these locations.

5.1.2 Undocumented Poorly Graded Gravel Fill (GP Fill)

Undocumented poorly graded gravel fill (base rock) was encountered below the AC pavement in drilled borings B-1, B-2, B-6, B-7, and B-8 and extended to depths of about 1/3 to 1/2 foot bgs. Undocumented fill refers to materials placed without (available) records of subgrade conditions or evaluation of compaction. The gravel fill was generally gray, moist, and consisted of fine- to coarse-grained, angular to sub-angular (up to about 3/4-inch diameter) gravel.

5.1.3 Topsoil Fill

Topsoil fill was encountered at the surface of the following explorations: drilled borings B-3 through B-5; hand auger borings HA-1 and HA-2, and test pits TP-1 through TP-3. The topsoil fill generally consisted of rooted sandy silt (ML) that was brown, moist, low plasticity, with fine-grained sand, and contained varying amounts of fine, sub-angular gravel. Some of our explorations were completed within existing landscaped areas (i.e., B-3 through B-5, HA-1, and HA-2); in which case, the topsoil fill was overlain with approximately 2 inches of organic landscaping mulch consisting of shredded bark. The topsoil fill extended to approximate depths ranging from 1/2 to 1 foot bgs in the referenced explorations. The topsoil extended to the termination depth in test pit TP-1, about 1 foot bgs, due to encountering un-marked irrigation lines.

² Metro Regional Government, 2016. MetroMap Regional Land Information System (RLIS) data, accessed July, 2016, from Metro website: <http://gis.oregonmetro.gov/metromap/>.

5.1.4 Native Gravelly Silt (ML)

Underlying the poorly graded gravel fill or topsoil fill in B-1, B-3, B-4, B-5, B-8, HA-1, HA-2, and TP-3 was native gravelly silt. This soil was typically stiff to very stiff (based on WDCP tests conducted in HA-1 and HA-2), brown, moist, exhibited low plasticity, and contained varying amounts of sub-angular to sub-rounded rounded gravel up to about 3 inches. The gravelly silt extended to depths ranging from about 2 to 4 feet bgs. The gravelly silt extended to the termination depth in auger boring HA-2, about 1 foot bgs.

5.1.5 Native Lean Clay with Sand (CL)

Underlying the poorly graded gravel fill in drilled borings B-2 and B-6 was native lean clay with sand. The lean clay with sand was typically stiff, brown, moist, exhibited low to medium plasticity, and contained fine-grained sand. The lean clay with sand extended to a depth of about 4 feet bgs in borings B-2 and B-6.

5.1.6 Native Silty Gravel with Sand (GM)

Native silty gravel with sand was encountered below the native gravelly silt in B-1, B-3, B-4, B-5, B-8, HA-1, and TP-3, below the lean clay with sand in B-2 and B-6, below the poorly graded gravel fill in B-7, and below the topsoil in TP-2. The silty gravel with sand was typically dense to very dense, gray and brown, moist, consisting of sub-angular to rounded, coarse gravel, and contained abundant rounded cobbles. Several boulders up to about 24 inches in diameter were observed in TP-2 and TP-3 within this unit. The native silty gravel with sand extended to the maximum depths explored in the following explorations: drilled borings B-1 through B-5, B-7, and B-8 (up to about 11½ feet bgs); hand auger boring HA-1 (about 3 feet bgs); and test pit TP-3 (about 5 feet bgs). This soil graded into poorly graded gravel with silt and sand in B-6 at about 7½ feet bgs and to poorly graded sand with silt and gravel at about 4 feet bgs in TP-2 (description of both these materials provided below). This soil extended to the total depths explored in the remainder of the test pits, about 4 to 7 feet bgs.

5.1.7 Native Poorly Graded Gravel with Silt and Sand (GP-GM)

Underlying the native silty gravel with sand in B-6 was native poorly graded gravel with silt and sand. This soil was typically dense to very dense, gray and brown, moist, consisting of sub-angular to rounded, coarse gravel, with fine- to coarse-grained sand, and contained abundant rounded cobbles up to about 12 inches in diameter. This soil extended to the total depth explored in B-6, about 15½ feet bgs.

5.1.8 Native Poorly Graded Sand with Silt and Gravel (SP-SM)

Underlying the native silty gravel with sand in TP-2 was native poorly graded sand with silt and gravel. This soil was typically medium dense, gray and brown, moist, consisting of fine- to medium-grained sand, with coarse, sub-angular to sub-rounded gravel, and occasional rounded cobbles up to about 6 inches in diameter. This soil extended to the total depth explored in TP-2, about 5 feet bgs.

The native soils listed above were consistent with descriptions by others of the coarse-grained Missoula flood deposits mapped in the area.

5.2 **Groundwater**

Groundwater was not encountered during our exploration on June 14 and 15, 2016. To develop a further understanding of groundwater levels in the region, we researched available well logs located within

Section 23, Township 3 South, Range 1 West on the Oregon Water Resources Department (OWRD)³ website. Our review indicated that groundwater levels were generally on the order of 20 feet bgs in the vicinity of the site. Groundwater levels vary with local topography. In addition, the groundwater levels reported on the OWRD logs often reflect the purpose of the well, so water well logs may only report deeper, confined groundwater, while geotechnical or environmental borings will often report any groundwater encountered, including shallow, unconfined groundwater. Therefore, the levels reported on the OWRD well logs referenced above are considered generally indicative of local water levels and may not reflect actual groundwater levels at the project site. We anticipate that groundwater levels will fluctuate due to seasonal and annual variations in precipitation, changes in site utilization, or other factors. Additionally, the native coarse-grained Missoula flood deposits containing high concentrations of silt are conducive to formation of perched groundwater.

6.0 EXISTING FOUNDATION CONDITIONS

CGT completed seven hand-excavated test pits at the site on June 14 and 15, 2016, adjacent to the existing east and west wing buildings, to evaluate the dimensions (outer width and bearing depth) of the existing perimeter foundations and subgrade conditions. The results of our hand-excavated test pits are summarized in the table below.

Table 1 Results of Hand-Excavated Test Pits¹

Exploration	Embedment Depth (inches bgs) ²	Outer Width (inches) ³	Footing Thickness (inches)	Notes / Observations
HE-1	35	3	6 ⁴	Footing underlain by dense gravel, based on probing observations (i.e., possibly native).
HE-2	N/A	N/A	N/A	Unable to locate existing footing after digging to about 2½ feet bgs and subsequently probing an additional 1½ feet. Possibly in area of existing basement.
HE-3	32	4	8	Based on probing, the footing is underlain by about 4 inches of ¾-inch minus crushed rock, which is underlain by dense gravels (possibly native).
HE-4	29	4	8	Footing subgrade probed medium stiff and consisted of brown sandy silt with occasional roots.
HE-5	33	3	8	Based on probing, the footing is underlain by dense ¾-inch minus crushed rock.
HE-6	N/A	N/A	N/A	Unable to locate existing footing after digging to about 2¼ feet bgs and subsequently probing an additional 1 foot. Cobbles and boulders encountered in excavation.
HE-7	N/A	N/A	N/A	HE-7 abandoned - irrigation / water line encountered at about 6 inches bgs.
<ol style="list-style-type: none"> 1. Measurements recorded during hand-excavated test pits should be considered approximate. 2. Footing embedment depth was measured depth from the existing adjacent ground surface to the bottom of the footing. 3. Outer width of the footing was measured from the outside edge of the wall stem to the outside edge of the footing. 4. Footing thickness reported is based on probing (i.e., not directly measured). 				

³ Oregon Water Resources Department, 2016. Water well logs obtained from OWRD website <http://www.wrd.state.or.us/>

7.0 SEISMIC CONSIDERATIONS

7.1 Seismic Design

Section 1613.3.2 of the 2014 Oregon Structural Specialty Code (2014 OSSC) requires that the determination of the seismic site class be based on subsurface data in accordance with Chapter 20 of the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures (ASCE 7). Based on the results of the explorations and review of geologic mapping, we have assigned the site as Site Class D for the subsurface conditions encountered. Earthquake ground motion parameters for the site were obtained based on the United States Geological Survey (USGS) Seismic Design Values for Buildings - Ground Motion Parameter Web Application⁴. The site Latitude 45.29729° North and Longitude 122.76818° West were input as the site location. The following table shows the recommended seismic design parameters for the site.

Table 2 Seismic Ground Motion Values (Section 1613.5 of 2014 OSSC)

Parameter		Value
Mapped Acceleration Parameters	Spectral Acceleration, 0.2 second (S_s)	0.922g
	Spectral Acceleration, 1.0 second (S_1)	0.409g
Coefficients (Site Class D)	Site Coefficient, 0.2 sec. (F_A)	1.131
	Site Coefficient, 1.0 sec. (F_V)	1.591
Adjusted MCE Spectral Response Parameters	MCE Spectral Acceleration, 0.2 sec. (S_{MS})	1.043g
	MCE Spectral Acceleration, 1.0 sec. (S_{M1})	0.650g
Design Spectral Response Accelerations	Design Spectral Acceleration, 0.2 seconds (S_{DS})	0.695g
	Design Spectral Acceleration, 1.0 second (S_{D1})	0.434g
Seismic Design Category		D

7.2 Seismic Hazards

7.2.1 Liquefaction

In general, liquefaction occurs when deposits of loose/soft, saturated, cohesionless soils, generally sands and silts, are subjected to strong earthquake shaking. If these deposits cannot drain quickly enough, pore water pressures can increase, approaching the value of the overburden pressure. The shear strength of a cohesionless soil is directly proportional to the effective stress, which is equal to the difference between the overburden pressure and the pore water pressure. When the pore water pressure increases to the value of the overburden pressure, the shear strength of the soil approaches zero, and the soil can liquefy. The liquefied soils can undergo rapid consolidation or, if unconfined, can flow as a liquid. Structures supported by the liquefied soils can experience rapid, excessive settlement, shearing, or even catastrophic failure.

For fine-grained soils, susceptibility to liquefaction is evaluated based on penetration resistance and plasticity, among other characteristics. Criteria for identifying non-liquefiable, fine-grained soils are constantly evolving. Current practice⁵ to identify non-liquefiable, fine-grained soils is based on plasticity characteristics of the soils, as follows: (1) liquid limit greater than 47 percent, (2) plasticity index greater than 20 percent, and (3) moisture content less than 85 percent of the liquid limit. The susceptibility of sands,

⁴ United States Geological Survey, 2016. Seismic Design Parameters determined using: "U.S. Seismic Design Maps Web Application - Version 3.1.0," from the USGS website <http://geohazards.usgs.gov/designmaps/us/application.php>.

⁵ Seed, R.B. et al., 2003. Recent Advances in Soil Liquefaction Engineering: A Unified and Consistent Framework. Earthquake Engineering Research Center Report No. EERC 2003-06.

gravels, and sand-gravel mixtures to liquefaction is typically assessed based on penetration resistance, as measured using SPTs, CPTs, or Becker Hammer Penetration tests (BPTs).

Based on the relatively shallow depth to dense to very dense, gravels, the soils encountered at the site are considered non-liquefiable within the depths explored.

7.2.2 Slope Instability

Due to the relatively minor anticipated/assumed changes in site grade and the overall gently-sloping topography, we conclude the risk of seismically-induced slope instability at the site is low.

7.2.3 Surface Rupture

7.2.3.1 Faulting

Although the site is situated in a region of the country with known active faults and historic seismic activity, no known faults exist on or immediately adjacent to the site. Therefore, the risk of surface rupture at the site due to faulting is considered low.

7.2.3.2 Lateral Spread

Surface rupture due to lateral spread can occur on sites underlain by liquefiable soils that are located on or immediately adjacent to slopes steeper than about 3 degrees (20H:1V), and/or adjacent to a free face, such as a stream bank or the shore of an open body of water. During lateral spread, the materials overlying the liquefied soils are subject to lateral movement downslope or toward the free face. Given the lack of liquefiable soils at the site, the relatively flat to gentle topography and the absence of a free face, the risk of surface rupture due to lateral spread is considered negligible.

8.0 CONCLUSIONS

Based on the results of our field explorations and analyses, the site may be developed as described in Section 1.1 of this report, provided the recommendations presented in this report are incorporated into the design and development. The primary geotechnical considerations for this project include:

- Minimum Footing Width: The referenced construction drawings from 1986 show the continuous perimeter footings to have a width of 16 inches and a thickness of 8 inches. Based on Section 1809 of the 2014 OSSC, the minimum footing width for a 3-story structure (assuming light-frame construction) is 18 inches, with a minimum thickness of 8 inches. Based on the results of our hand-excavated test pits (as summarized in Section 6.0), the existing continuous perimeter footings measured between 12 and 14 inches wide (assuming symmetry and a wall thickness of 6 inches, as shown on the construction plans) with a typical measured thickness of 8 inches. Geotechnical recommendations for minimum footing width and embedment are presented in Section 9.5.2 of this report.
- Cobbles and Boulders at Foundation/Floor Slab/Pavement Subgrade: Based on our explorations, abundant cobbles and isolated boulders may be encountered at design subgrade elevations for shallow foundations, floor slabs, or pavements. Structural elements placed directly on boulders and cobbles can result in uneven ground response. To minimize this potential, CGT recommends:
 - Boulders encountered during foundation, floor slab, and pavement subgrade preparation should be removed in their entirety and replaced with granular structural fill.
 - Foundation subgrades should be covered with a minimum of 3 inches of imported granular structural fill compacted to a well-keyed condition.

- Existing Undocumented Fill & Structures: Existing undocumented fill and structures (including the existing lobby building and any other structures to be demolished) should be removed prior to redevelopment of the site. Recommendations for demolition are presented in Section 9.1.1 of this report.
- Moisture Sensitive Soils: The near-surface, native gravelly silt (ML), lean clay with sand (CL), and silty gravel with sand (GM) encountered at the site contain a high percentage of fines and are sensitive to small changes in moisture content, and can pose challenges for earthwork performed during wet weather. Recommendations for wet weather construction are presented in Section 9.3 of this report.

9.0 PRELIMINARY RECOMMENDATIONS

The following paragraphs present preliminary geotechnical recommendations for design and construction of the proposed project. The recommendations presented in this report are based on the information provided to us, results of the field investigation, laboratory data, and professional judgment. CGT has observed only a small portion of the pertinent subsurface conditions. The recommendations are based on the assumption that the subsurface conditions do not deviate appreciably from those found during the field investigation. CGT should be consulted for further recommendations if variations and/or undesirable geotechnical conditions are encountered at the site.

This report is considered preliminary, as we have not reviewed final grading plans, finished floor elevations, and/or detailed structural information for the development. An addendum indicating that this report is final, and including supplemental recommendations, if warranted, can be issued after we have reviewed those items.

9.1 Site Preparation

9.1.1 Demolition

Demolition of the existing structures should include complete removal of all structural elements, including foundations and concrete slabs. Abandoned buried utilities should similarly be removed or grouted full. Concrete debris resulting from demolition may be re-used as structural fill, provided it is processed in accordance with the recommendations presented in Section 9.4.1 of this report. Alternatively, demolition debris should be hauled off site for disposal.

9.1.2 Site Stripping

Existing asphalt pavements and undocumented fill (GP Fill and Topsoil Fill), as well as vegetation (where present) should be removed from within, and for a minimum 5-foot margin around any new proposed structures and pavement areas. Based on the results of our field explorations, poorly graded gravel fill (underlying existing pavement areas) stripping depths are anticipated to be about ½ foot bgs, and topsoil stripping depths at the site are anticipated to be on the order of ½ to 1 foot bgs. These materials may be deeper or shallower at locations away from the completed explorations. A representative from CGT should provide recommendations for actual stripping depths based on observations during site stripping. Stripped surface vegetation and rooted soils should be transported off-site for disposal, or stockpiled for later use in landscaped areas. Stripped AC pavement may be re-used as structural fill provided it is processed in accordance with the recommendations presented in Section 9.4.1.1 of this report. Stripped gravel fill soils may be re-used as structural fill (per Section 9.4.1.2) or hauled offsite for disposal.

9.1.3 Grubbing

Grubbing of trees should include the removal of the root mass and roots greater than ½-inch in diameter. Grubbed materials should be transported off-site for disposal. Root masses from larger trees may extend greater than 3 feet bgs. Where root masses are removed, the resulting excavation should be properly backfilled with structural fill in conformance with Section 9.4 of this report.

9.1.4 Existing Utilities & Below-Grade Structures

All existing utilities at the site should be identified prior to excavation. Abandoned utility lines beneath new buildings, pavements, and hardscaping should be completely removed or grouted full. Soft, loose, or otherwise unsuitable soils encountered in utility trench excavations should be removed and replaced with structural fill as described in Section 9.4 of this report. If encountered during site preparation, buried structures (i.e. footings, foundation walls, slabs-on-grade, tanks, etc.) should be completely removed and disposed of off-site except for concrete which may, alternatively, be processed for re-use as described in Section 9.4.1.1. Resulting excavations should be backfilled with structural fill as described in Section 9.4 of this report, as needed to achieve design grades.

9.1.5 Erosion Control

Erosion and sedimentation control measures should be employed in accordance with applicable City, County and State regulations regarding erosion control.

9.2 Temporary Excavations

9.2.1 Overview

Conventional earthmoving equipment in proper working condition should be capable of making necessary excavations into the on-site soils. All excavations should be in accordance with applicable OSHA and state regulations. It is the contractor's responsibility to select the excavation methods, to monitor site excavations for safety, and to provide any shoring required to protect personnel and adjacent improvements. A "competent person", as defined by OR-OSHA, should be on site during construction in accordance with regulations presented by OR-OSHA. CGT's current role on the project does not include review or oversight of excavation safety.

9.2.2 OSHA Soil Class

For use in the planning and construction of temporary excavations up to 8 feet in depth at the site, an OSHA soil type "C" should be used for the native coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM).

9.2.3 Utility Trenches

Temporary trench cuts should stand near vertical to depths of approximately 4 feet in the on-site native coarse-grained flood deposits. Some instability may occur in these soils if groundwater seepage is encountered. If seepage undermines the stability of the trench, or if sidewall caving is observed during excavation, the sidewalls should be flattened or shored. Although not anticipated, depending on the time of year trench excavations occur, trench dewatering may be required in order to maintain dry working conditions, particularly if the invert elevations of the proposed utilities are below the groundwater level. If groundwater is present at the base of utility excavations, we recommend placing trench stabilization material

at the base of the excavations. Trench stabilization material should be in conformance with Section 9.4.3 of this report.

9.2.4 Excavations Near Existing Foundations

Temporary excavations near existing footings should not extend within a 1H:1V (horizontal to vertical) plane projected out and down from the outside, bottom edge of the footings. In the event that excavation needs to extend below the referenced plane, temporary shoring of the excavation and/or underpinning of the footing may be required. The geotechnical engineer should be consulted to review proposed excavation plans for this design case to provide specific recommendations.

9.3 **Wet Weather Considerations**

For planning purposes, the wet season should be considered to extend from late September to late June. It is our experience that dry weather working conditions should prevail between early July and the middle of September. Notwithstanding the above, soil conditions should be evaluated in the field by the geotechnical engineer or his representative at the initial stage of site preparation to determine whether the recommendations within this section should be incorporated into construction.

9.3.1 General Considerations

The near-surface, native coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM) containing high percentages of fines encountered within our explorations are susceptible to disturbance during wet weather. Trafficability of these soils may be difficult, and significant damage to subgrade soils will likely occur, if earthwork is undertaken without proper precautions at times when the exposed soils are more than a few percentage points above optimum moisture content. For construction that occurs during the wet season, methods to limit soil disturbance should be employed. Site preparation activities may need to be accomplished using track-mounted equipment, loading removed material onto trucks supported on granular haul roads. Soils that have been disturbed during site preparation activities should be over-excavated to firm, stable subgrade, and replaced with imported granular structural fill.

9.3.2 Geotextile Separation Fabric

We recommend placing geotextile separation fabric to serve as a barrier between the fine-grained subgrade and imported fill in areas of repeated or heavy construction traffic. The geotextile fabric should be in conformance with Section 02320 of the current Oregon Department of Transportation (ODOT) Standard Specification for Construction. Please refer to Table 02320-4 of the 2015 ODOT specifications for specific requirements.

9.3.3 Granular Working Surfaces (Haul Roads & Staging Areas)

Haul roads subjected to repeated heavy, tire-mounted, construction traffic (e.g. dump trucks, concrete trucks, etc.) will require a minimum of 18 inches of imported granular material. For light staging areas, 12 inches of imported granular material should be sufficient. Additional granular material or geo-grid reinforcement may be recommended based on site conditions and/or loading at the time of construction. The imported granular material should be in conformance with Section 9.4.2 of this report and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. The prepared subgrade should be covered with geotextile fabric prior to placement of the imported granular material. The imported granular material should be placed in a single lift (up to 24 inches deep) and compacted using a smooth-drum, non-vibratory roller until well-keyed.

9.3.4 Footing Subgrade Protection

A minimum of 3 inches of imported granular material is recommended to protect fine-grained, footing subgrades from foot traffic during inclement weather. The imported granular material should be in conformance with Section 9.4.2 of this report. The maximum particle size should be limited to 1 inch. The imported granular material should be placed in one lift over the prepared, undisturbed subgrade, and compacted using non-vibratory equipment until well keyed.

9.4 **Structural Fill**

The geotechnical engineer should be provided the opportunity to review all materials considered for use as structural fill a minimum of five business days prior to placement. Samples of the proposed structural fill materials should be submitted to the geotechnical engineer for testing a minimum of five business day prior to use on site.

The geotechnical engineer or his representative should be contacted to evaluate compaction of structural fill as the material is being placed. Evaluation of compaction may take the form of in-place density tests and/or proof-roll tests with suitable equipment. Compaction of structural fill should be evaluated at intervals not exceeding every 2 vertical feet as the fill is being placed.

9.4.1 On-Site Soils (General Use)

9.4.1.1 Concrete & AC Debris

Concrete and asphaltic concrete (AC) debris resulting from the demolition of existing pavements and other features (foundations, floor slabs, sidewalks, etc.) can be re-used as structural fill if processed/crushed into material that is fairly well graded between coarse and fine. The processed/crushed concrete and/or asphalt should contain no organic matter, debris, or particles larger than 4 inches in diameter. Moisture conditioning (wetting) should be expected in order to achieve adequate compaction. When used as structural fill, this material should be placed and compacted in general accordance with Section 9.4.2 of this report.

9.4.1.2 Undocumented Poorly Graded Gravel Fill (GP Fill)

Re-use of the gravel fill materials (base rock underlying the existing pavements) as structural fill is feasible, provided they can be kept free of debris, deleterious materials, and particles larger than 4 inches in diameter. If used as structural fill, these materials should be prepared in conformance with Section 9.4.2 of this report.

9.4.1.3 Native Gravelly Silt (ML), Native Silty Sand with Gravel (GM), and Poorly Graded Gravel with Silt and Sand (GP-GM)

Re-use of these on-site soils as structural fill may be difficult because these soils are sensitive to small changes in moisture content and are difficult, if not impossible, to adequately compact during wet weather. We anticipate that the moisture content of these soils will be higher than the optimum moisture content for satisfactory compaction. Therefore, moisture conditioning (drying) should be expected in order to achieve adequate compaction. If used as structural fill, these soils should be free of organic matter, debris, and particles larger than 4 inches. Processing of the on-site gravelly soils should include removal of cobbles and boulders in excess of 4 inches in diameter. When used as structural fill, these soils should be placed in lifts with a maximum thickness of about 8 inches at moisture contents within -1 and +3 percent of optimum, and compacted to not less than 95 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor).

If the on-site soils cannot be properly moisture-conditioned and/or processed, we recommend using imported granular material for structural fill.

9.4.2 Imported Granular Structural Fill (General Use)

Imported granular structural fill should consist of angular pit or quarry run rock, crushed rock, or crushed gravel that is fairly well graded between coarse and fine particle sizes. The granular fill should contain no organic matter, debris, or particles larger than 1½ inches, and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. The percentage of fines can be increased to 12 percent of the material passing the U.S. Standard No. 200 Sieve if placed during dry weather, and provided the fill material is moisture-conditioned, as necessary, for proper compaction. Granular fill material should be placed in lifts with a maximum thickness of about 12 inches, and compacted to not less than 95 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor). Proper moisture conditioning and the use of vibratory equipment will facilitate compaction of these materials.

Compaction of granular fill materials with high percentages of particle sizes in excess of 1½ inches should be evaluated by periodic proof-roll observation or continuous observation by the CGT geotechnical representative during fill placement, since it cannot be tested conventionally using a nuclear densometer. Such materials should be "capped" with a minimum of 12 inches of 1½-inch-minus (or finer) granular fill under all structural elements (footings, concrete slabs, etc.).

9.4.3 Trench Base Stabilization Material

If groundwater is present at the base of utility excavations, stabilization material should be placed to help stabilize the base of the trench. Trench base stabilization material should consist of at least 1 foot of well-graded granular material with a maximum particle size of 4 inches and less than 5 percent material passing the U.S. Standard No. 4 Sieve. The material should be free of organic matter and other deleterious material, placed in one lift, and compacted until well-keyed.

9.4.4 Trench Backfill Material

Trench backfill for the utility pipe base and pipe zone should consist of granular material as recommended by the utility pipe manufacturer. Trench backfill above the pipe zone should consist of well-graded granular material containing no organic matter or debris, have a maximum particle size of ¾ inch, and have less than 8 percent material passing the U.S. Standard No. 200 Sieve. As a guideline, trench backfill should be placed in maximum 12-inch thick lifts. The earthwork contractor may elect to use alternative lift thicknesses based on their experience with specific equipment and fill material conditions during construction in order to achieve the required compaction. The following table presents recommended relative compaction percentages for utility trench backfill.

Table 3 Utility Trench Backfill Compaction Recommendations

Backfill Zone	Recommended <u>Minimum</u> Relative Compaction	
	Structural Areas ¹	Landscaping Areas
Pipe Base and Within Pipe Zone	90% ASTM D1557 or pipe manufacturer's recommendation	88% ASTM D1557 or pipe manufacturer's recommendation
Above Pipe Zone	92% ASTM D1557	90% ASTM D1557
Within 3 Feet of Design Subgrade	95% ASTM D1557	90% ASTM D1557
¹ Includes proposed buildings, pavements, hardscaping, etc.		

9.4.5 Controlled Low-Strength Material (CLSM)

CLSM is a self-compacting, cementitious material that is typically considered when backfilling localized areas. CLSM is sometimes referred to as “controlled density fill” or CDF. Due to its flowable characteristics, CLSM typically can be placed in restricted-access excavations where placing and compacting fill is difficult. If chosen for use at this site, we recommend the CLSM be in conformance with Section 00442 of the most recent, State of Oregon, Standard Specifications for Highway Construction. The geotechnical engineer’s representative should observe placement of the CLSM and obtain samples for compression testing in accordance with ASTM D4832. As a guideline, for each day’s placement, two compressive strength specimens from the same CLSM sample should be tested. The results of the two individual compressive strength tests should be averaged to obtain the reported 28-day compressive strength. If CLSM is considered for use on this site, please contact the geotechnical engineer for site-specific and application-specific recommendations.

9.5 New Shallow Foundations

The following sections pertain to new shallow foundations only.

Once detailed structural information is available (i.e., number of stories to be added and anticipated loading), CGT should be contacted to assess the suitability and available bearing capacity of the existing continuous foundations. This will be required in order to provide geotechnical recommendations for retro-fitting existing foundations on a case-by-case basis.

9.5.1 Subgrade Preparation

Satisfactory subgrade support for shallow foundations can be obtained on the native, coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM), or new structural fill that is properly placed and compacted on these materials during construction. Boulders encountered during foundation excavation should be removed and replaced with granular structural fill. The geotechnical engineer or his representative should be contacted to observe subgrade conditions prior to placement of forms, reinforcement steel, or granular backfill (if required). If soft, loose, or otherwise unsuitable soils are encountered, they should be over-excavated as recommended by the geotechnical representative at the time of construction. The resulting over-excavation should be brought back to grade with imported granular structural fill in conformance with Section 9.4.2 of this report. The maximum particle size of over-excavation backfill should be limited to 1½ inches. All granular pads for footings should be constructed a minimum of 6 inches wider on each side of the footing for every vertical foot of over-excavation.

9.5.2 Minimum Footing Width & Embedment

Minimum footing widths should be in conformance with the most recent, Oregon Structural Specialty Code (OSSC). As a guideline, CGT recommends individual spread footings have a minimum width of 24 inches. Similarly, for three-story and four-story, light-framed structures, we recommend continuous wall footings have a minimum width of 18 and 24 inches, respectively. All footings should be founded at least 18 inches below the lowest, permanent adjacent grade.

9.5.3 Bearing Pressure & Settlement

New footings founded as recommended above should be proportioned for a maximum allowable soil bearing pressure of 4,000 pounds per square foot (psf). This bearing pressure is a net bearing pressure, applies to the total of dead and long-term live loads, and may be increased by one-third when considering seismic or wind loads. For the recommended design bearing pressure, total settlement of footings is anticipated to be less than 1 inch. Differential settlements between adjacent columns and/or bearing walls should not exceed ½-inch.

9.5.4 Lateral Capacity

A maximum passive (equivalent-fluid) earth pressure of 150 pounds per cubic foot (pcf) is recommended for design for footings confined by the native soils described above or imported granular structural fill that is properly placed and compacted during construction. The recommended earth pressure was computed using a factor of safety of 1½, which is appropriate due to the amount of movement required to develop full passive resistance. In order to develop the above capacity, the following should be understood:

1. Concrete must be poured neat in the excavation or the perimeter of the foundation must be backfilled with imported granular structural fill,
2. The adjacent grade must be level or rising away from the footing,
3. The static ground water level must remain below the base of the foundation throughout the year, and
4. Adjacent development (e.g. slabs, pavements, etc.) and/or the upper 12 inches of adjacent unpaved, structural fill areas should not be considered when calculating passive resistance.

An ultimate coefficient of friction equal to 0.35 may be used when calculating resistance to sliding for footings founded on native soils. This value may be increased to 0.45 for footings founded on a minimum of 6 inches of imported granular structural fill (crushed rock) that is properly placed and compacted during construction.

9.5.5 Subsurface Drainage

Recognizing the significant fine-grained fraction of the near-surface soils encountered at this site, placement of foundation drains is recommended at the outside base elevations of perimeter continuous wall footings. Foundation drains should consist of a minimum 4-inch diameter, perforated, PVC drainpipe wrapped with a non-woven geotextile filter fabric. The drains should be backfilled with a minimum of 2 cubic feet of open graded drain rock per lineal foot of pipe. The drain rock should also be encased in a geotextile fabric in order to provide separation from the surrounding soils. Foundation drains should be positively sloped and should outlet to a suitable discharge point. The geotechnical engineer or his representative should observe the drains prior to backfilling. Roof drains should not be tied into foundation drains.

9.6 New Rigid Retaining Walls

9.6.1 Footings

Retaining wall footings should be designed and constructed in conformance with the recommendations presented in Section 9.5 of this report, as applicable.

9.6.2 Wall Drains

We recommend placing a retaining wall drain at the base elevation of the heel of the retaining wall footing. Retaining wall drains should consist of a minimum 4-inch-diameter, perforated, HDPE (High Density Polyethylene) drainpipe wrapped with a non-woven geotextile filter fabric. The drains should be backfilled with a minimum of 2 cubic feet of open graded drain rock per lineal foot of pipe. The drain rock should also be encased in a geotextile fabric in order to provide separation from the surrounding soils. Retaining wall drains should be positively sloped and should outlet to a suitable discharge point. The geotechnical engineer or his representative should be contacted to observe the drains prior to backfilling. Roof or area drains should not be tied into retaining wall drains.

9.6.3 Retaining Wall Backfill

Retaining walls should be backfilled with imported granular structural fill in conformance with Section 9.4.2 and contain less than 5 percent passing the U.S. Standard No. 200 Sieve. In landscape and structural areas, the backfill should be compacted to a minimum of 90 percent of the material's maximum dry density as determined in general accordance with ASTM D1557 (Modified Proctor). When placing fill behind walls, care must be taken to minimize undue lateral loads on the walls. Heavy compaction equipment should be kept at least "H" feet from the back of the walls, where "H" is the height of the fill above the top of the wall foundation. Light mechanical or hand tamping equipment should be used for compaction of backfill materials within "H" feet of the back of the walls.

9.6.4 Design Parameters & Limitations

For rigid retaining walls founded, backfilled with imported crushed granular fill, and drained as recommended above, the following table presents parameters recommended for design.

Table 4 Recommended Design Parameters for Rigid Retaining Walls

Retaining Wall Condition	Backfill Condition	Static Equivalent Fluid Pressure (S _A)	Seismic Equivalent Fluid Pressure (S _{AE})
Not Restrained from Rotation	Level (i = 0)	29 pcf	41 pcf
Restrained from Rotation	Level (i = 0)	52 pcf	56 pcf
<p><u>Note 1.</u> Refer to the attached Figure 18 for a graphical representation of static and seismic loading conditions. Seismic component of active thrust acts at 0.6H above the base of the wall.</p> <p><u>Note 2.</u> Seismic / dynamic lateral loads were computed using the Mononobe-Okabe Equation as presented in the 1997 Federal Highway Administration (FHWA) design manual.</p>			

The above design recommendations are based on the assumptions that:

- (1) the walls consist of concrete cantilevered retaining walls ($\beta = 0$ and $\delta = 24$ degrees, see Figure 18).
- (2) the walls are 10 feet or less in height.

- (3) the backfill is drained and consists of imported crushed granular structural fill ($\phi = 38$ degrees).
- (4) no line, point, or area load surcharges are imposed behind the walls.
- (5) the grade behind the wall is level, or sloping down and away from the wall, for a distance of 10 feet or more from the wall.
- (6) the grade in front of the walls is level or sloping up for a distance of at least 5 feet from the wall.

Re-evaluation of our recommendations will be required if the retaining wall design criteria for the project vary from these assumptions.

9.7 Floor Slabs

9.7.1 Subgrade Preparation

Satisfactory subgrade support for floor slabs constructed on grade, supporting up to 150 psf area loading, can be obtained from the native, coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM), or on structural fill that is properly placed and compacted on these materials during construction. The geotechnical engineer or his representative should observe floor slab subgrade soils to evaluate surface consistencies. If soft, loose, or otherwise unsuitable soils are encountered, they should be over-excavated as recommended by the CGT geotechnical representative at the time of construction. The resulting over-excavation should be brought back to grade with imported granular structural fill as described in Section 9.4.2 of this report.

9.7.2 Floor Slab Base Rock

Concrete floor slabs should be supported on a minimum 6-inch thick layer of crushed rock.

9.7.2.1 Floor Slabs in Non-Habitable Areas

Floor slab base rock under slabs in non-habitable areas (i.e. garages, exterior slabs, etc.) should consist of well-graded granular material (crushed rock) containing no organic matter or debris, have a maximum particle size of $\frac{3}{4}$ -inch, and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. Floor slab base rock should be placed in one lift and compacted to not less than 90 percent of the material's maximum dry density as determined in general accordance with ASTM D1557 (Modified Proctor). We recommend "choking" the surface of the base rock with fine sand just prior to concrete placement. Choking means the voids between the largest aggregate particles are filled with sand, but does not provide a layer of sand above the base rock. Choking the base rock surface reduces the lateral restraint on the bottom of the concrete during curing. Choking the base rock also reduces punctures in vapor retarding membranes due to foot traffic where such membranes are used.

9.7.2.2 Floor Slabs in Habitable Areas

Floor slab base rock in areas where radon gas collection is desired (i.e. under floor slabs within living spaces) should be supported on a minimum 6-inch-thick layer of gas-permeable base rock. The gas-permeable base rock should consist of open-graded crushed rock containing no organic matter or debris, with all material passing through a 2-inch sieve and retained on the $\frac{1}{4}$ -inch sieve, in accordance with Section 1812.3.2, Bullet 1, of the 2014 OSSC.

Section 1812.3.3 of the 2014 OSSC recommends that a minimum 6-mil polyethylene sheeting (or 3-mil cross-laminated polyethylene sheeting), or equivalent material with equal or greater resistance to puncture, be placed on top of the gas-permeable base rock to act as a soil-gas-retarder. Placement and installation of this sheeting should be in conformance with that indicated in Section 1812.3.3 of the 2014 OSSC.

The geotechnical engineer or his representative should be contacted to observe gas-permeable base rock conditions prior to placement of the soil-gas-retarder.

9.7.3 Design Considerations

For floor slabs constructed as recommended, an equivalent modulus of subgrade reaction of 100 pounds per cubic inch (pci) is recommended for the design of the floor slab. If a higher equivalent modulus of subgrade reaction value is required, this can be achieved with a thicker base rock section below the slab. Please consult the geotechnical engineer if alternative values are needed. Floor slabs constructed as recommended will likely settle less than ½-inch. For general floor slab construction, slabs should be jointed around columns and walls to permit slabs and foundations to settle differentially.

9.7.4 Subgrade Moisture Considerations

Liquid moisture and moisture vapor should be expected at the subgrade surface. The crushed rock base recommended above typically serves as a capillary break and provides protection against liquid moisture. Where moisture vapor emission through the slab must be minimized, e.g. impervious floor coverings, storage of moisture sensitive materials directly on the slab surface, etc., a vapor retarding membrane or vapor barrier below the slab should be considered. Factors such as cost, special considerations for construction, floor coverings, and end use suggest that the decision regarding a vapor retarding membrane or vapor barrier be made by the architect and owner.

If a vapor retarder or vapor barrier is placed below the slab, its location should be based on current American Concrete Institute (ACI) guidelines, ACI 302 Guide for Concrete Floor and Slab Construction. In some cases, this indicates placement of concrete directly on the vapor retarder or barrier. Please note that the placement of concrete directly on impervious membranes increases the risk of plastic shrinkage cracking and slab curling in the concrete. Construction practices to reduce or eliminate such risk, as described in ACI 302, should be employed during concrete placement.

9.8 Flexible Pavements

9.8.1 Subgrade Preparation

Satisfactory subgrade support for flexible pavements can be obtained from the native, coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM), or on structural fill that is properly placed and compacted on these materials during construction. If soft, loose, or otherwise unsuitable soils are encountered, they should be over-excavated as recommended by the CGT geotechnical representative at the time of construction. The resulting over-excavation should be brought back to grade with imported granular structural fill as described in Section 9.4.2 of this report. Pavement subgrade surfaces should be crowned (or sloped) for proper drainage in accordance with specifications provided by the project civil engineer.

9.8.1.1 Dry Weather Construction

After site preparation as recommended above, but prior to placement of fill and/or base rock, the geotechnical engineer or his representative should observe a proof roll test of the exposed subgrade soils in order to identify areas of excessive yielding. Proof rolling of subgrade soils is typically conducted during dry weather conditions using a fully-loaded, 10- to 12-cubic-yard, tire-mounted, dump truck or equivalent weighted water truck. Areas that appear too soft and wet to support proof rolling equipment should be prepared in general accordance with the recommendations for wet weather construction presented in Section 9.3 of this report. If areas of soft soil or excessive yielding are identified, the affected material should

be over-excavated to firm, stable subgrade, and replaced with imported granular structural fill in conformance with Section 9.4.2 of this report.

9.8.1.2 Wet Weather Construction

Preparation of pavement subgrade soils during wet weather should be in conformance with Section 9.3 of this report. As indicated therein, increased base rock sections and a geotextile separation fabric may be required in wet conditions in order to support construction traffic and protect the subgrade.

9.8.2 Input Parameters

Design of the flexible pavement sections presented below was based on the parameters presented in the following table and the American Association of State Highway and Transportation Officials (AASHTO) 1993 “Design of Pavement Structures” manual and the Asphalt Paving Association of Oregon (APAO) 1998 “Asphalt Paving Design Guide” (revised in October 2003). If any of the items listed need revised, please contact us and we will reassess the provided design sections.

Table 5 Input Parameters Assigned for Pavement Design

Input Parameter	Design Value ¹	Input Parameter	Design Value ¹	
Pavement Design Life	20 years	Resilient Modulus ⁴	Subgrade	5,000 psi
Annual Percent Growth	0 percent		Crushed Aggregate Base	22,500 psi
Serviceability	4.2 initial, 2.5 terminal	Structural Coefficient ²	Crushed Aggregate Base	0.10
Reliability ²	75 percent		Asphalt	0.42
Standard Deviation ²	0.49	Vehicle Traffic ⁵	APAO Level I “Very Light”	Up to 10,000 ESAL
Drainage Factor ³	1.0		APAO Level II “Light”	Up to 50,000 ESAL

¹ If any of the above parameters are incorrect, please contact us so that we may revise our recommendations, if warranted.
² Value based on guidelines presented in Section 3 of the referenced APAO manual.
³ Assumes good drainage away from pavement, base, and subgrade is achieved by proper crowning of subgrades.
⁴ Values based on experience with similar soils prepared as recommended in this report.
⁵ ESAL = Total 18-Kip equivalent single axle load. Traffic levels taken from Table 3.1 of APAO manual. If an increased traffic load is estimated, please contact us so that we may refine the traffic loading and revise our recommendations, if warranted.

9.8.3 Recommended Minimum Sections

The following table presents the minimum recommended flexible pavement sections for the traffic levels indicated in the preceding table, based on the referenced AASHTO procedures.

Table 6 Recommended Minimum Pavement Sections

Material	Minimum Thickness (inches)	
	APAO Level I (Parking Lot)	APAO Level II (Drive Lanes)
Asphalt Pavement (inches)	3	3½
Crushed Aggregate Base (inches) ¹	5	9
Subgrade Soils	Prepared in accordance with Section 9.8.1 of this report.	

¹ Thickness shown assumes dry weather construction. A granular sub-base section and/or a geotextile separation fabric may be required in wet conditions in order to support construction traffic and protect the subgrade. Refer to Section 9.3 for additional discussion.

9.8.4 Asphalt & Base Course Materials

Asphalt pavement and base course material should conform to the most recent State of Oregon Standard Specifications for Highway Construction. Place aggregate base in one lift, and compact to not less than 95 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor). Asphalt pavement should be compacted to at least 91 percent of the material's theoretical maximum density, as determined in general accordance with ASTM D2041 (Rice Specific Gravity).

9.9 **Additional Considerations**

9.9.1 Drainage

Subsurface drains should be connected to the nearest storm drain, on-site infiltration system (if selected and designed by others), or other suitable discharge point. Paved surfaces and ground near or adjacent to the buildings should be sloped to drain away from the buildings. Surface water from paved surfaces and open spaces should be collected and routed to a suitable discharge point. Surface water should not be directed into foundation drains or onto site slopes.

9.9.1 Expansive Potential

The near-surface, native soils consist of predominately coarse-grained soils, and are not considered to be susceptible to appreciable movements from changes in moisture content. Accordingly, no special considerations are required to mitigate expansive potential of the near surface soils at the site.

10.0 **RECOMMENDED ADDITIONAL SERVICES**

10.1 **Design Review**

Geotechnical design review is of paramount importance, particularly for large and/or complex projects. We recommend the geotechnical design review take place prior to releasing bid packets to contractors.

10.2 **Observation of Construction**

Satisfactory earthwork, foundation, floor slab, and pavement performance depends to a large degree on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during subsurface explorations, and recognition of changed conditions often requires experience. We recommend that qualified personnel visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those observed to date and anticipated in this report. We recommend the geotechnical engineer or their representative attend a pre-construction meeting coordinated by the contractor and/or developer. The project geotechnical engineer or their representative should provide observations and/or testing of at least the following earthwork elements during construction:

- Site Stripping & Grubbing
- Subgrade Preparation for Structural Fills, Shallow Foundations, Retaining Walls, Floor Slabs, and Pavements
- Compaction of Structural Fill and Utility Trench Backfill
- Compaction of Base Rock for Floor Slabs and Pavements

- Compaction of AC for Pavements

It is imperative that the owner and/or contractor request earthwork observations and testing at a frequency sufficient to allow the geotechnical engineer to provide a final letter of compliance for the earthwork activities.

11.0 LIMITATIONS

We have prepared this report for use by the owner/developer and other members of the design and construction team for the proposed development. The opinions and recommendations contained within this report are not intended to be, nor should they be construed as a warranty of subsurface conditions, but are forwarded to assist in the planning and design process.

We have made observations based on our explorations that indicate the soil conditions at only those specific locations and only to the depths penetrated. These observations do not necessarily reflect soil types, strata thickness, or water level variations that may exist between or away from our explorations. If subsurface conditions vary from those encountered in our site explorations, CGT should be alerted to the change in conditions so that we may provide additional geotechnical recommendations, if necessary. Observation by experienced geotechnical personnel should be considered an integral part of the construction process.

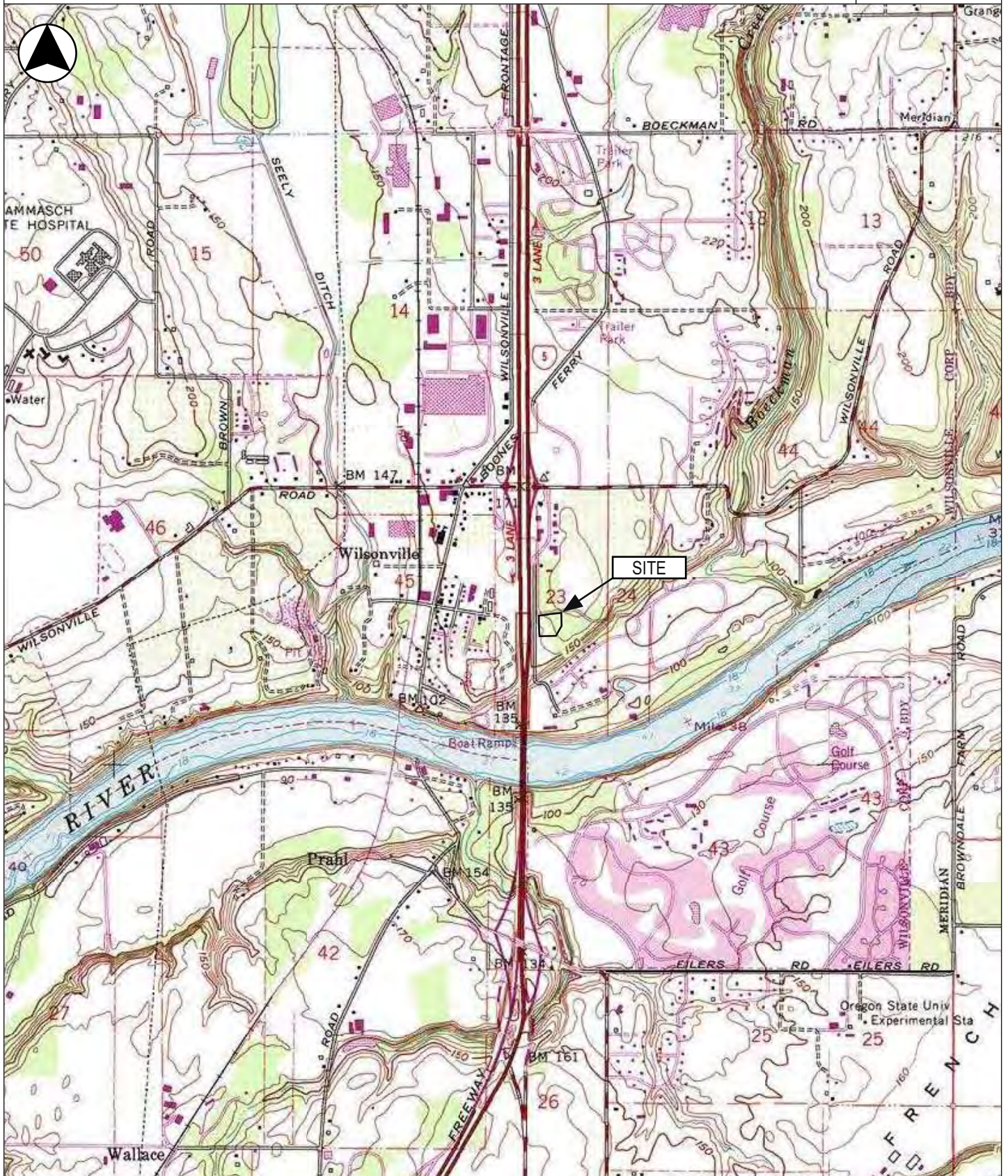
The owner/developer is responsible for ensuring that the project designers and contractors implement our recommendations. When the design has been finalized, prior to releasing bid packets to contractors, we recommend that the design drawings and specifications be reviewed by our firm to see that our recommendations have been interpreted and implemented as intended. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification. Design review and construction phase testing and observation services are beyond the scope of our current assignment, but will be provided for an additional fee.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Geotechnical engineering and the geologic sciences are characterized by a degree of uncertainty. Professional judgments presented in this report are based on our understanding of the proposed construction, familiarity with similar projects in the area, and on general experience. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared; no warranty, expressed or implied, is made. This report is subject to review and should not be relied upon after a period of three years.

QUALITY INN MOTEL EXPANSION - WILSONVILLE, OREGON
Project Number G1604408

FIGURE 1
Site Location



Map created with TOPO!™, © 2006 National Geographic Holdings
 USGS 7.5 Minute Topographic Map Series, Sherwood, Oregon Quadrangle.

Township 3S, Range 1W, Section 23 Willamette Meridian

Latitude: 45.29729° North
 Longitude: 122.76818° West

1 Inch = 2,000 feet





QUALITY INN MOTEL EXPANSION - WILSONVILLE, OREGON
Project Number G1604408



Figure 2

Site Plan



- B-1  Drilled boring location
- TP-1  Test pit location

LEGEND

- HA-1  Hand auger boring location
- HE-1  Hand excavated test pit location

 Orientation of site photographs shown on Figure 3

1 Inch = 50 Feet



NOTES: Drawing based on observations made while on site and site plans provided by client. All exploration locations should be considered approximate.



Photograph 1



Photograph 2



Photograph 3



Photograph 4



See Figure 2 for approximate photograph locations and directions. Photographs were taken at the time of our fieldwork.

QUALITY INN MOTEL EXPANSION - WILSONVILLE, OREGON
Project Number G1604408

FIGURE 4
Soil Classification

Classification of Terms and Content		USCS Grain Size				
NAME: Group Name and Symbol Relative Density or Consistency Color Moisture Content Plasticity Other Constituents Other: Grain Shape, Approximate Gradation Organics, Cement, Structure, Odor, etc. Geologic Name or Formation	Fines	<#200 (.075 mm)				
	Sand	Fine	#200 - #40 (.425 mm)			
		Medium	#40 - #10 (2 mm)			
		Coarse	#10 - #4 (4.75)			
	Gravel	Fine	#4 - 0.75 inch			
		Coarse	0.75 inch - 3 inches			
Cobbles	3 to 12 inches; scattered <15% est. numerous >15% est.					
Boulders	> 12 inches					
Relative Density or Consistency						
Granular Material		Fine-Grained (cohesive) Materials				
SPT N-Value	Density	SPT N-Value	Torvane tsf Shear Strength	Pocket Pen tsf Unconfined	Consistency	Manual Penetration Test
		<2	<0.13	<0.25	Very Soft	Thumb penetrates more than 1 inch
0 - 4	Very Loose	2 - 4	0.13 - 0.25	0.25 - 0.50	Soft	Thumb penetrates about 1 inch
4 - 10	Loose	4 - 8	0.25 - 0.50	0.50 - 1.00	Medium Stiff	Thumb penetrates about ¼ inch
10 - 30	Medium Dense	8 - 15	0.50 - 1.00	1.00 - 2.00	Stiff	Thumb penetrates less than ¼ inch
30 - 50	Dense	15 - 30	1.00 - 2.00	2.00 - 4.00	Very Stiff	Readily indented by thumbnail
>50	Very Dense	>30	>2.00	>4.00	Hard	Difficult to indent by thumbnail
Moisture Content				Structure		
Dry: Absence of moisture, dusty, dry to the touch Damp: Some moisture but leaves no moisture on hand Moist: Leaves moisture on hand Wet: Visible free water, likely from below water table				Stratified: Alternating layers of material or color >6 mm thick Laminated: Alternating layers < 6 mm thick Fissured: Breaks along definite fracture planes Slickensided: Striated, polished, or glossy fracture planes Blocky: Cohesive soil that can be broken down into small angular lumps which resist further breakdown Lenses: Has small pockets of different soils, note thickness Homogeneous: Same color and appearance throughout		
	Plasticity	Dry Strength	Dilatancy	Toughness		
ML	Non to Low	Non to Low	Slow to Rapid	Low, can't roll		
CL	Low to Medium	Medium to High	None to Slow	Medium		
MH	Medium to High	Low to Medium	None to Slow	Low to Medium		
CH	Medium to High	High to Very High	None	High		
Visual-Manual Classification						
Major Divisions		Group Symbols		Typical Names		
Coarse Grained Soils: More than 50% retained on No. 200 sieve	Gravels: 50% or more retained on the No. 4 sieve	Clean Gravels	GW	Well-graded gravels and gravel/sand mixtures, little or no fines		
		Gravels with Fines	GP	Poorly-graded gravels and gravel/sand mixtures, little or no fines		
			GM	Silty gravels, gravel/sand/silt mixtures		
		GC	Clayey gravels, gravel/sand/clay mixtures			
	Sands: More than 50% passing the No. 4 sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines		
		Sands with Fines	SP	Poorly-graded sands and gravelly sands, little or no fines		
SM			Silty sands, sand/silt mixtures			
Fine-Grained Soils: 50% or more Passes No. 200 Sieve	Silt and Clays Low Plasticity Fines	SC	Clayey sands, sand/clay mixtures			
		ML	Inorganic silts, rock flour, clayey silts			
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays			
	Silt and Clays High Plasticity Fines	OL	Organic silt and organic silty clays of low plasticity			
		MH	Inorganic silts, clayey silts			
		CH	Inorganic clays of high plasticity, fat clays			
Highly Organic Soils	OH	Organic clays of medium to high plasticity				
		PT	Peat, muck, and other highly organic soils			



ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

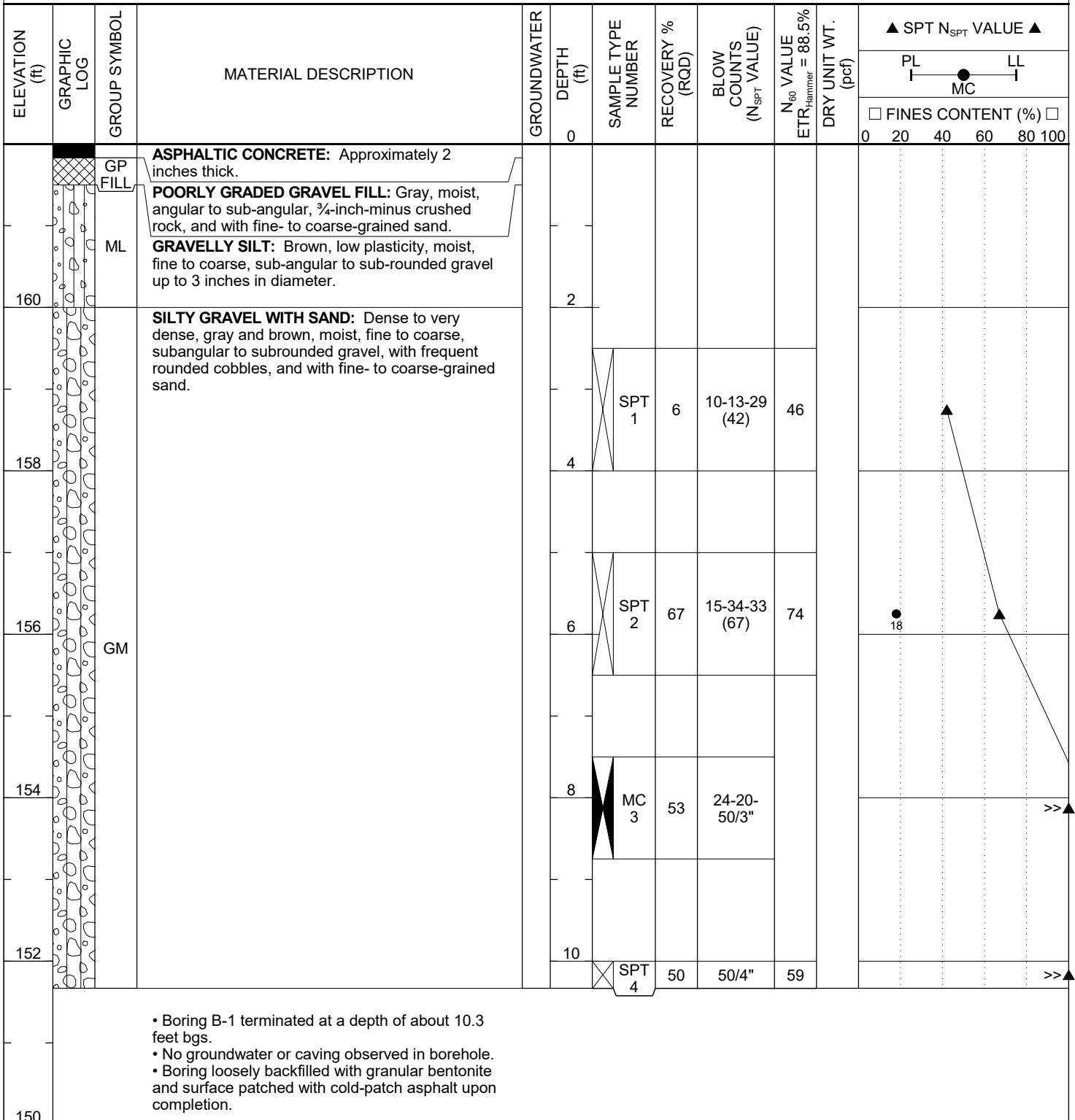


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FIGURE 5

Boring B-1

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 162 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16

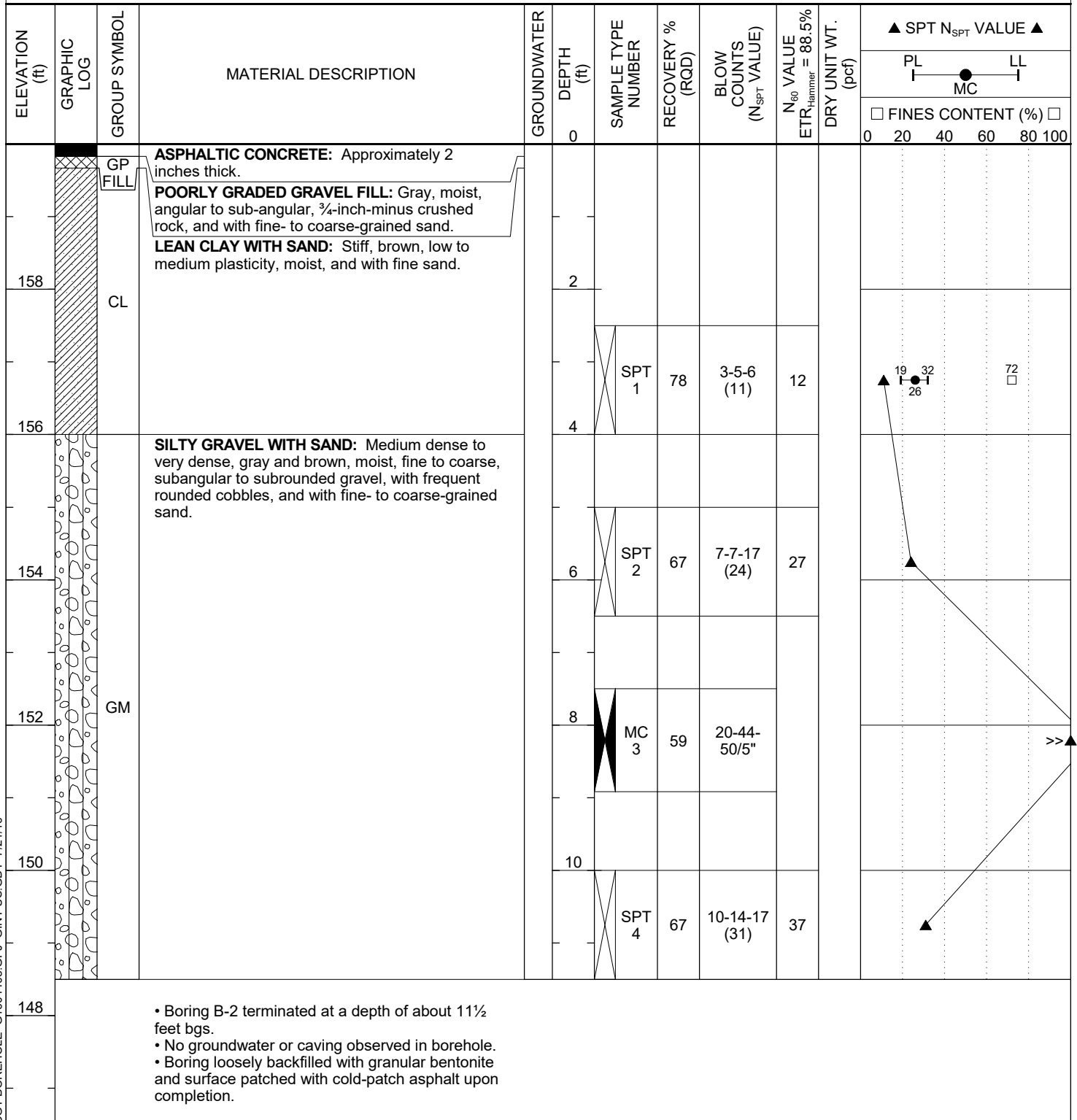


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FIGURE 6

Boring B-2

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 160 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



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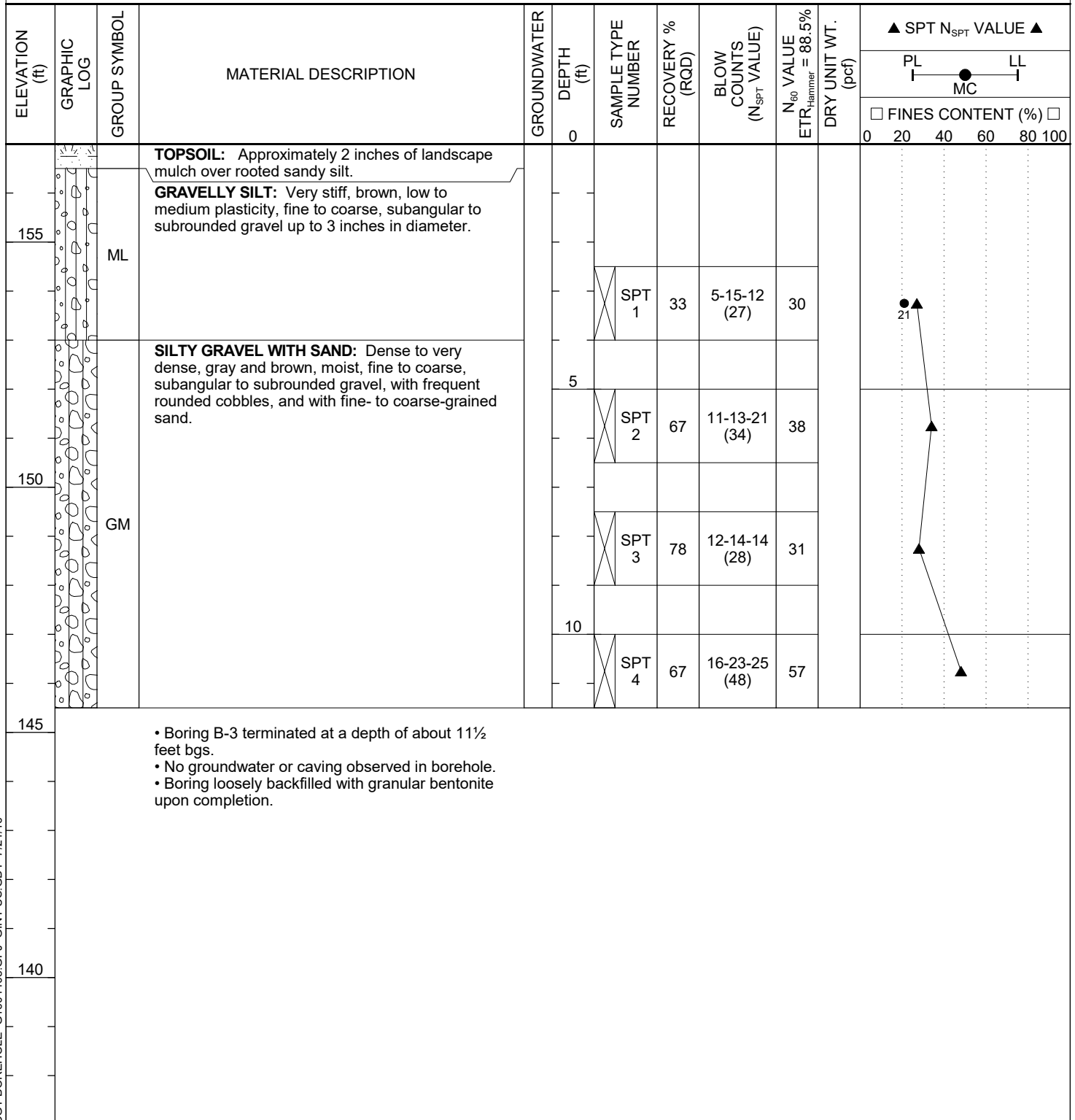


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FIGURE 7

Boring B-3

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 157 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16

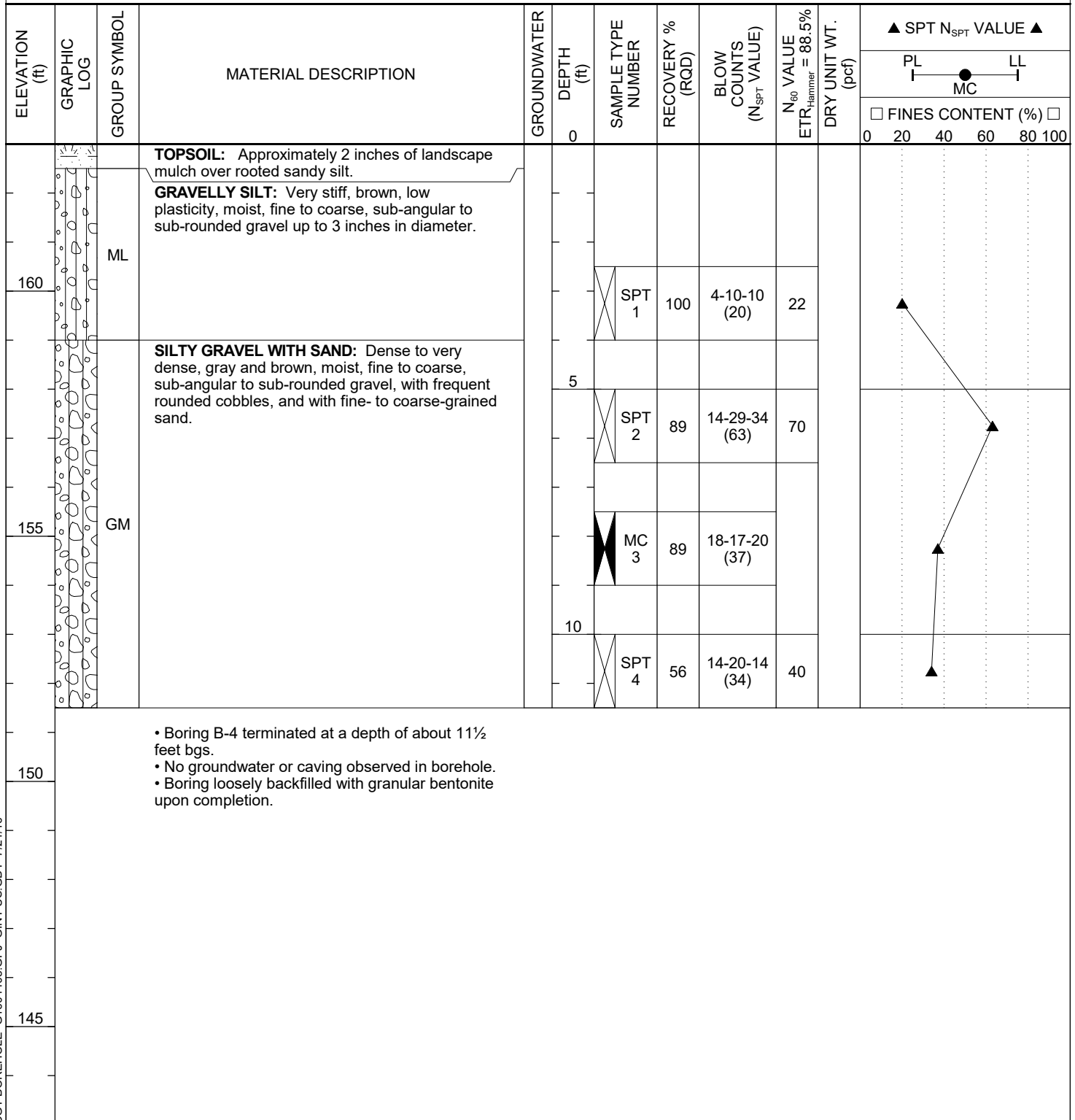


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FIGURE 8

Boring B-4

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 163 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



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FIGURE 9

Boring B-5

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 165 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲			
											PL	MC	LL	
											□ FINES CONTENT (%) □			
		ML	<p>TOPSOIL: Approximately 2 inches of landscape mulch over rooted sandy silt.</p> <p>GRAVELLY SILT: Brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to 3 inches in diameter.</p>											
160		GM	<p>SILTY GRAVEL WITH SAND: Medium dense to very dense, gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand.</p> <p><i>SPT sample No. 2 collected at 5 feet bgs consisted of predominately loose, caved-in soil from surface portion of the boring. Therefore, SPT blow count value at this depth is considered understated.</i></p>			SPT 1	89	13-12-14 (26)	29					
					5	SPT 2	33	1-1-2 (3)	3					
						MC 3	89	12-22-31 (53)						
155					10	SPT 4	33	6-8-20 (28)	33					

- Boring B-5 terminated at a depth of about 11½ feet bgs.
- No groundwater or caving observed in borehole.
- Boring loosely backfilled with granular bentonite upon completion.

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FIGURE 10

Boring B-6

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 168 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲	
										PL	LL
											MC
											□ FINES CONTENT (%) □
165	GP FILL	GP FILL	ASPHALTIC CONCRETE: Approximately 2 inches thick.								
	CL	CL	POORLY GRADED GRAVEL FILL: Gray, moist, angular to sub-angular, 3/4-inch-minus crushed rock, and with fine- to coarse-grained sand. LEAN CLAY WITH SAND: Stiff, brown, low to medium plasticity, moist, and with fine sand.		SPT 1	33	10-4-6 (10)	11			19 31 22
	GM	GM	SILTY GRAVEL WITH SAND: Medium dense, gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, and with fine- to coarse-grained sand.	5	SPT 2	33	9-5-8 (13)	14			
160	GP-GM	GP-GM	POORLY GRADED GRAVEL WITH SILT & SAND: Dense to very dense, gray and brown, moist, fine to coarse, sub-angular to rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand.	10	SPT 3	78	12-24-50 (74)	82			
					SPT 4	44	13-19-22 (41)	48			
155					SPT 5	39	24-20-25 (45)	53			
				15	SPT 6	20	50/5"	63			>>

- Boring B-6 terminated at a depth of about 15.4 feet bgs.
- No groundwater or caving observed in borehole.
- Boring loosely backfilled with granular bentonite and surface patched with cold-patch asphalt upon completion.

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FIGURE 11

Boring B-7

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 167 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲	
										PL	LL
				0						<input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/> 0 20 40 60 80 100	
165		GP FILL	ASPHALTIC CONCRETE: Approximately 2 inches thick. POORLY GRADED GRAVEL FILL: Gray, moist, angular to sub-angular, 3/4-inch-minus crushed rock, and with fine- to coarse-grained sand. SILTY GRAVEL WITH SAND: Very dense, gray and brown, moist, fine to coarse, sub-angular to rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand. <i>Did not collect SPT sample at 2 1/2 feet bgs due to advancing through a boulder at this depth (per driller's comments).</i>								
160		GM	Some orange mottling observed between approximately 7 1/2 and 9 feet bgs.	5	SPT 2	56	15-23-24 (47)	52			● 17
					MC 3	67	29-35-41 (76)				▲
				10	SPT 4	72	15-24-24 (48)	57			▲
155			<ul style="list-style-type: none"> Boring B-7 terminated at a depth of about 11 1/2 feet bgs. No groundwater or caving observed in borehole. Boring loosely backfilled with granular bentonite and surface patched with cold-patch asphalt upon completion. 								
150											

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FIGURE 12

Boring B-8

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 165 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲	
										PL	LL
										<input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/> 0 20 40 60 80 100	
	GP FILL		ASPHALTIC CONCRETE: Approximately 2 inches thick.								
	ML		POORLY GRADED GRAVEL FILL: Gray, moist, angular to sub-angular, 3/4-inch-minus crushed rock, and with fine- to coarse-grained sand. GRAVELLY SILT: Stiff, brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to approximately 3 inches in diameter.		SPT 1	33	5-3-11 (14)	15			▲ 23
160			SILTY GRAVEL WITH SAND: Very dense, gray and brown, moist, fine to coarse, sub-angular to rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand.	5	SPT 2	0	50/3"	55			>>
		GM			MC 3	54	24-41-50/1"				>>
155				10	SPT 4	40	11-50/4"	59			>>

- Boring B-8 terminated at a depth of about 10.8 feet bgs.
- No groundwater or caving observed in borehole.
- Boring loosely backfilled with granular bentonite and surface patched with cold-patch asphalt upon completion.

CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16

150

145

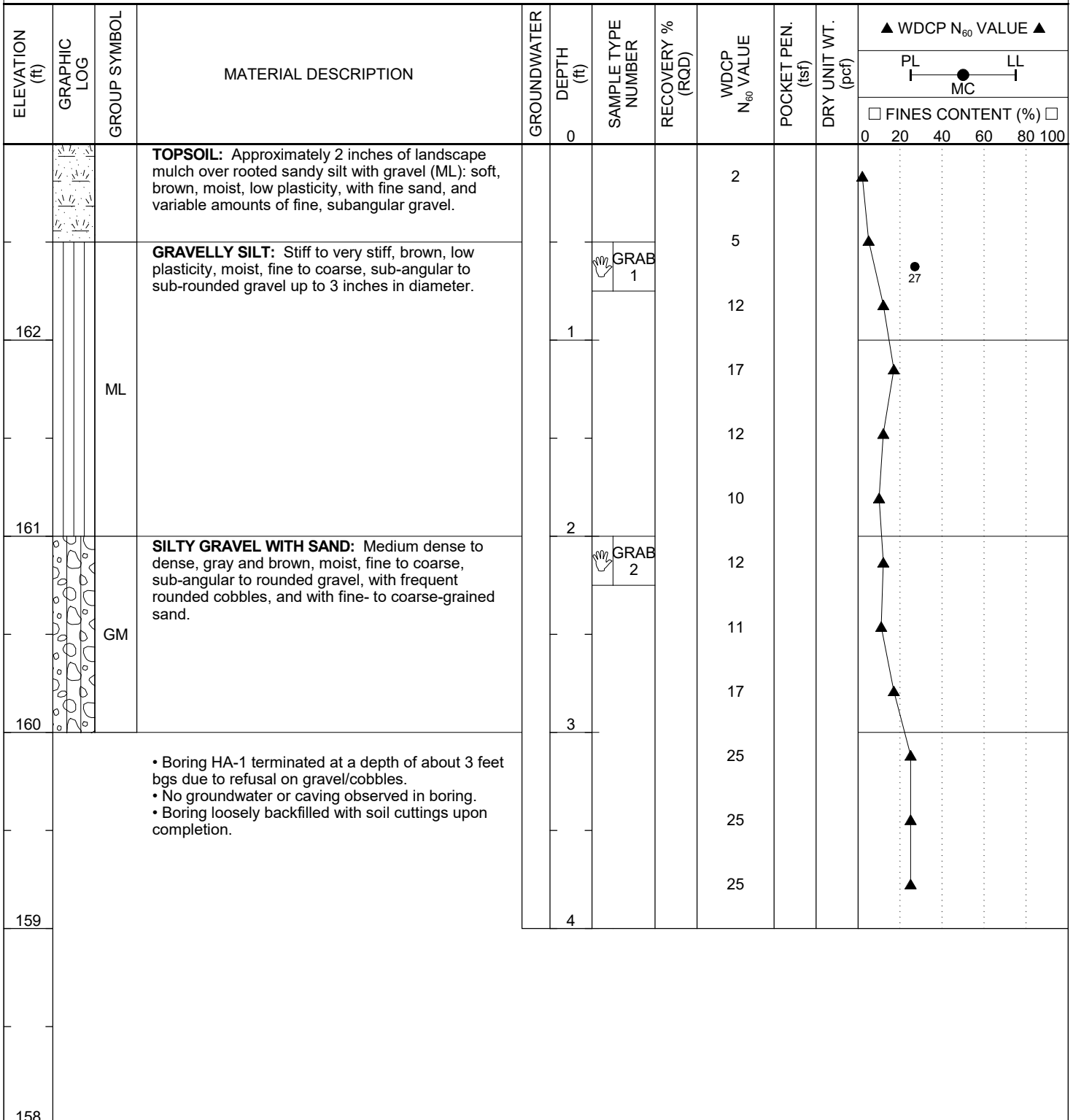


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FIGURE 13

Boring HA-1

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 163 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR CGT	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT 3 inch Hand Auger	SEEPAGE ---
DRILLING METHOD Hand Auger	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER DRILLING ---



CGT EXPLORATION WITH WDCP G1604408.GPJ GINT US.GDT 7/21/16



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FIGURE 14

Boring HA-2

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 158 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR CGT	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT 3 inch Hand Auger	SEEPAGE ---
DRILLING METHOD Hand Auger	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲	
										PL	LL
				0							0 20 40 60 80 100
			TOPSOIL: Approximately 2 inches of landscape mulch over rooted sandy silt with gravel (ML): stiff, brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.				11				
157		ML	GRAVELLY SILT: Very stiff, brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to 3 inches in diameter.		GRAB 1		20				
				1			25				
			<ul style="list-style-type: none"> Boring HA-2 terminated at a depth of about 1 foot bgs due to refusal on gravel/cobbles. No groundwater or caving observed in boring. Boring loosely backfilled with soil cuttings upon completion. 				25				
156				2			25				
							25				
							25				
155							25				
							25				
154							25				
							25				
153				3			25				

CGT EXPLORATION WITH WDCP G1604408.GPJ GINT US.GDT 7/21/16



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FIGURE 15

Test Pit TP-1

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/15/16 GROUND ELEVATION 162 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
EXCAVATION CONTRACTOR CGT	LOGGED BY Kyle Smetana REVIEWED BY Jeff Quinn
EQUIPMENT Takeuchi TB-230	SEEPAGE ---
EXCAVATION METHOD Test Pit	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER EXCAVATION ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲	
											PL	LL
											<input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/> 0 20 40 60 80 100	
161			TOPSOIL: Grass at ground surface over rooted sandy silt with gravel (ML): brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.		1							

- TP-1 terminated an approximate depth of 1 foot bgs due to encountering un-marked irrigation lines.
- Test pit loosely backfilled with excavated materials upon completion.

CGT EXPLORATION WITH WDCP G1604408.GPJ GINT US.GDT 7/21/16

160
159
158
157
156



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FIGURE 16

Test Pit TP-2

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/15/16 GROUND ELEVATION 148 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
EXCAVATION CONTRACTOR CGT	LOGGED BY Kyle Smetana REVIEWED BY Jeff Quinn
EQUIPMENT Takeuchi TB-230	SEEPAGE ---
EXCAVATION METHOD Test Pit & Infiltration Test	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER EXCAVATION ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲						
										PL	LL					
				0							MC					
										□ FINES CONTENT (%) □						
										0	20	40	60	80	100	
147			TOPSOIL: Grass at ground surface over rooted sandy silt with gravel (ML): brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.													
146		GM	SILTY GRAVEL WITH SAND: Gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, with frequent rounded cobbles, with fine- to coarse-grained sand, and occasional rounded boulders up to approximately 2 feet in diameter observed.	1												
145				2												
144				3												
143		SP-SM	POORLY GRADED SAND WITH SILT & GRAVEL: Gray and brown, moist, fine- to medium-grained sand, with coarse, sub-angular to sub-rounded gravel, and occasional rounded cobbles (up to approximately 6 inches in diameter).	4												
143				5	GRAB 1											

- TP-2 terminated at a depth of approximately 5 feet bgs.
- Infiltration test IT-1 performed at a depth of approximately 5 feet bgs (see Appendix A of report text for results).
- Test pit loosely backfilled with excavated materials upon completion.

CGT EXPLORATION WITH WDCP G1604408.GPJ GINT US.GDT 7/21/16

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FIGURE 17

Test Pit TP-3

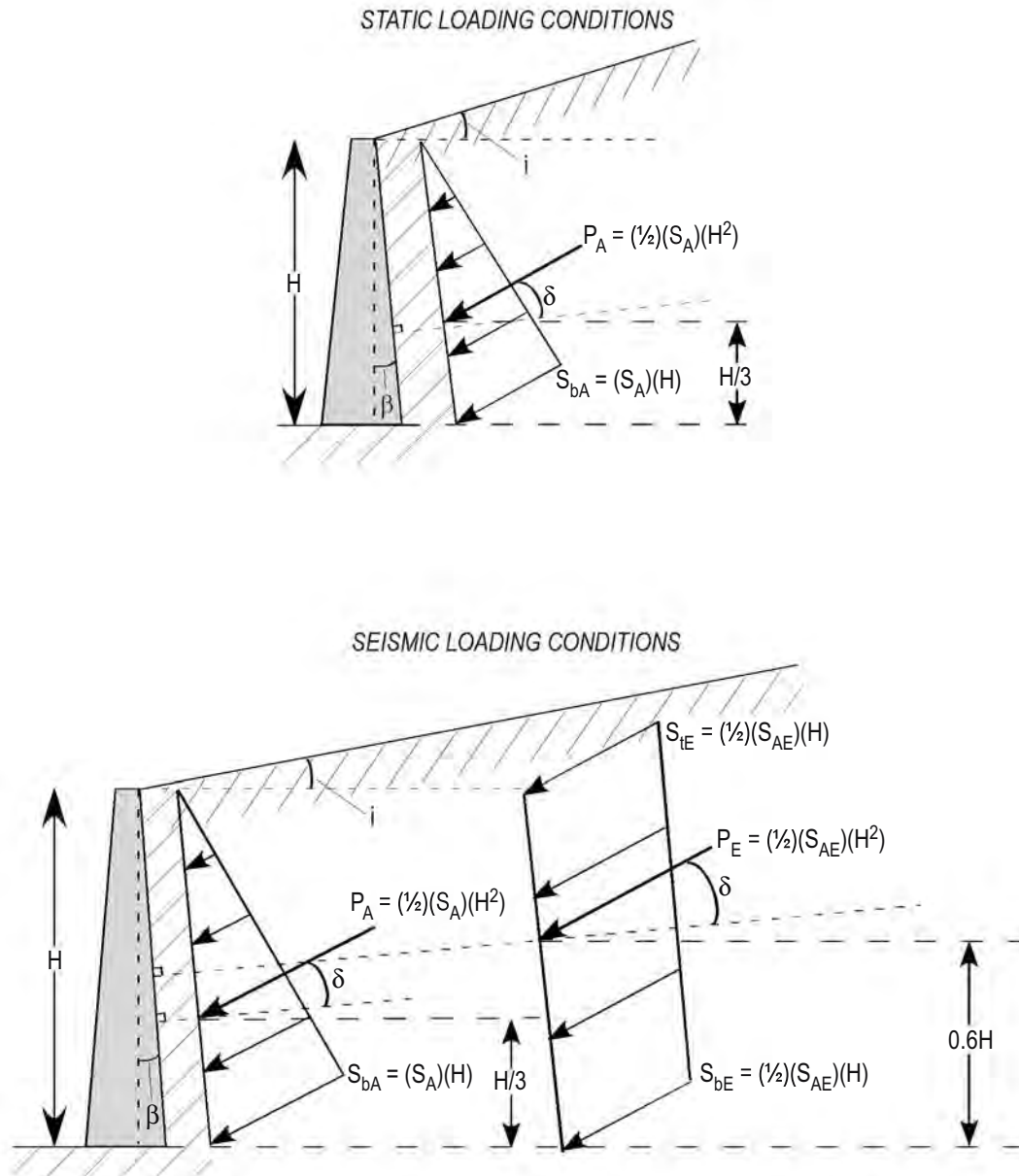
CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/15/16 GROUND ELEVATION 162 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
EXCAVATION CONTRACTOR CGT	LOGGED BY Kyle Smetana REVIEWED BY Jeff Quinn
EQUIPMENT Takeuchi TB-230	SEEPAGE ---
EXCAVATION METHOD Test Pit & Infiltration Test	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER EXCAVATION ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲	
										PL	LL
				0							MC
											□ FINES CONTENT (%) □
											0 20 40 60 80 100
161			TOPSOIL: Grass at ground surface over rooted sandy silt with gravel (ML): brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.								
160		ML	GRAVELLY SILT: Brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to 3 inches in diameter.	1							
159			SILTY GRAVEL WITH SAND: Gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, with frequent rounded cobbles, with fine- to coarse-grained sand, and occasional rounded boulders up to 18 inches in diameter.	2							
158				3							
157		GM		4							
156				5	GRAB 1						

- TP-3 terminated at a depth of approximately 5 feet bgs.
- Infiltration test IT-2 performed at a depth of approximately 5 feet bgs (see report text for results).
- Test pit loosely backfilled with excavated materials upon completion.

CGT EXPLORATION WITH WDCP G1604408.GPJ GINT US.GDT 7/21/16

ACTIVE LATERAL PRESSURE DISTRIBUTION



LEGEND

P_A = Static active thrust force acting at a triangular distribution on wall (lb/ft³)
 P_E = Dynamic component of active thrust force acting at a uniform distribution on wall (lb/ft)
 i = Slope of backfill (degrees)**
 S_A = Active (static) component of equivalent fluid pressure (lb/ft³)*
 S_{tE} = Active earth pressure (dynamic) at the top of the wall (lb/ft³)
 S_{bA} = Active earth pressure (static) at the bottom of the wall (lb/ft³)

ϕ = Internal angle of friction for backfill (degrees)**
 δ = Angle from normal of back of wall (degrees). Based on friction developing between wall and backfill**
 β = Slope of back of wall (degrees)**
 S_{AE} = Dynamic component of equivalent fluid pressure (lb/ft³)*
 S_{bE} = Active earth pressure (dynamic) at bottom of the wall (lb/ft³)*

*Refer to report text for calculated values **Refer to report text for modeled/assumed values

Notes

1. Uniform pressure distribution of seismic loading is based on empirical evaluations [Sherif et al, 1982 and Whitman, 1990].
2. Placement of seismic resultant force at 0.6H is based on wall behavior and model test results [Whitman, 1990].



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Appendix A: Infiltration Testing

**Quality Inn Motel Expansion
30800 SW Parkway Avenue
Wilsonville, Oregon**

CGT Project No. G1604408

July 21, 2016

Prepared For:

Mr. Dave Kimmel
PDG Planning Design Group
12469 SE 41st Court
Portland, Oregon 97222

Prepared By:

Carlson Geotechnical

A.1.0 INTRODUCTION

CGT performed infiltration testing as part of our geotechnical investigation of the site on June 15, 2016. The tests were performed in the general locations and at depths described in our proposal GP7125, dated May 24, 2016. The tests were performed within test pits TP-2 and TP-3, the approximate locations of which are shown on the Site Plan attached to the report as Figure 2.

A.2.0 TEST PROCEDURE

The infiltration tests were prepared in general accordance with the “Encased Falling Head Test Procedure” described in Section B.2.04 (Appendix B) of the 2014 City of Wilsonville Public Works Standards. A 6-inch diameter PVC pipe was inserted into the prepared test pit and hydraulically-pushed (with the excavator described in the main text) approximately 6 inches into the exposed soil horizon at the infiltration test depth. Granular bentonite was used to aid in sealing the interface between the test pipe and the soils at the base of the test pits.

Based on the coarse-grained nature of the soils, we did not anticipate that a 4-hour soaking period would be necessary. Prior to conducting the test, we added approximately 12 inches of water to the infiltration test pipe and noted the water completely dissipated in less than 10 minutes. This process was repeated a second time with similar results prior to conducting the infiltration tests. Per the referenced test procedure, if after filling the casing twice with 12 inches of water, the water seeps away completely in less than 10 minutes, the test can proceed immediately.

Each infiltration test consisted of five, 6-inch drawdown trials. For each trial, the infiltration test pipe was filled with 6 inches of water, and the time required for the water to completely infiltrate was recorded. The results are presented below.

A.3.0 TEST RESULTS

The following tables present the results of the infiltration tests performed at the site.

Location IT-1 (in TP-2)		Depth 5 feet bgs	Soil Type Poorly Graded Sand with Silt & Gravel (SP-SM)
Trial	Drop in Water Level (inches)	Time Interval (seconds)	Raw Infiltration Rate (inches per hour)
1	6	57	379
2	6	106	204
3	6	111	195
4	6	126	171
5	6	137	158

Location IT-2 (in TP-3)		Depth 5 feet bgs	Soil Type Silty Gravel with Sand (GM)
Trial	Drop in Water Level (inches)	Time Interval (seconds)	Raw Infiltration Rate (inches per hour)
1	6	48	450
2	6	63	343
3	6	66	327
4	6	72	300
5	6	80	270

A.4.0 DISCUSSION

Per the referenced test procedure, the result of the last water level drop should be used to calculate the tested infiltration rate. Accordingly, the tested, raw infiltration rates ranged from 158 inches per hour in IT-1, to 270 inches per hour in IT-2. Note that these infiltration rates do not include any safety or correction factors. We recommend the stormwater infiltration system designer consult the appropriate design manual in order to assign appropriate safety/correction factors to calculate the design infiltration rate for the proposed infiltration system(s). Once the design is completed, we recommend the infiltration system design (provided by others) and location be reviewed by the geotechnical engineer. If the location and/or depth of the system(s) change from what was indicated at the time of our fieldwork, additional testing may be recommended.

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**Report of
Preliminary Geotechnical Investigation
& Infiltration Testing
Quality Inn Motel Expansion
30800 SW Parkway Avenue
Wilsonville, Oregon**

CGT Project Number G1604408

Prepared for

Mr. Dave Kimmel
PDG Planning Design Group
12469 SE 41st Court
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July 21, 2016

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July 21, 2016

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**Report of
Preliminary Geotechnical Investigation
& Infiltration Testing
Quality Inn Motel Expansion
30800 SW Parkway Avenue
Wilsonville, Oregon**

CGT Project Number G1604408

Dear Mr. Kimmel:

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our preliminary geotechnical investigation and infiltration testing for the proposed Quality Inn Motel Expansion project. The site is located at 30800 SW Parkway Avenue in Wilsonville, Oregon. We performed our work in general accordance with CGT Proposal GP7125, dated May 24, 2016. Written authorization for our services was provided on May 26, 2016.

This report is considered preliminary, as we have not reviewed final grading plans, finished floor elevations, and/or detailed structural information for the development. An addendum indicating that this report is final, and including supplemental recommendations, if warranted, can be issued after we have reviewed those items.

We appreciate the opportunity to work with you on this project. Please contact us at 503.601.8250 if you have any questions regarding this report.

Respectfully Submitted,

CARLSON GEOTECHNICAL



EXPIRES: 12/31/2016

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1.0 INTRODUCTION

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our preliminary geotechnical investigation for the proposed Quality Inn Motel Expansion project. The site is located at 30800 SW Parkway Avenue in Wilsonville, Oregon, as shown on the attached Site Location, Figure 1.

1.1 Project Description

CGT developed an understanding of the proposed project based on our correspondence and site meeting with our client on June 8, 2016. In addition, we reviewed the provided Site Plan prepared by Carleton Hart Architecture (CHA), dated June 30, 2016, as well as construction plans from the original building development entitled, "Resort & Apartment Complex – Phase 1 Development, Lodging / Coffee Shop," prepared by Glenn E Chilcote Associates, AIA, and dated March 31, 1986. Based on review of the provided plans and our correspondence, we understand the project is in preliminary design stages, but will likely include:

- Demolition and removal of the existing motel lobby, located at the north side of the existing west wing of the motel.
- Construction of a new lobby addition, connecting the existing east and west wings of the motel, a new covered drop-off area (porte cochere) in front (to the north) of the new lobby, and new east and west stairways. Although not shown on the provided site plan, we understand that a third-level addition will be constructed to the existing two-level east and west wings of the motel. At the time this report was issued, no structural loading information was provided. We anticipate the new structures and additions will be wood-framed and that no below-grade levels are proposed.
- Based on the above-referenced construction drawings from 1986, we understand the ground level of the existing east and west wing structures consists of crawl space foundations (i.e., a continuous perimeter foundation with continuous common wall foundations at approximately 14-foot, on-center spacing).
- Re-configuration of the existing parking lot and drive lanes, resulting in a total of 51 parking spaces and a turn-around drive lane as part of the covered drop-off area in front of the new lobby. We anticipate that the existing on-site asphaltic concrete (AC) pavements will be demolished and re-constructed as part of this work.
- We understand stormwater collected from hardscaped surfaces may be partially or completely infiltrated at the site in a new stormwater infiltration system. We understand the type, sizing, and location of the system has not been determined. Design of the infiltration system will rest with others. As part of this assignment, CGT performed two infiltration tests at the site at depths of about 5 feet below ground surface (bgs).
- Although no grading plans have been provided, we anticipate permanent grade changes at the site will be minimal (i.e., cuts and fills of less than 2 feet in depth).

1.2 Scope of Work

The purpose of our work was to explore subsurface conditions at the site in order to provide geotechnical recommendations for design and construction of the proposed development. Our scope of work included the following:

- Contact the Oregon Utilities Notification Center to mark the locations of public utilities within a 30-foot radius of our explorations at the site. CGT also subcontracted a private utility locating service to mark the locations of public and private utilities within a 30-foot radius of our explorations.
- Explore subsurface conditions at the site with the following field exploration program:
 - Advance eight machine-drilled borings to depths ranging from about 10 to 15 feet bgs.
 - Excavate three test pits to depths up to about 5 feet bgs.
 - Advance two hand auger borings to depths up to about 3 feet bgs.
 - Excavate seven hand-excavated test pits to depths up to about 3 feet bgs.
 - Perform two infiltration tests at the site in general accordance with the Encased Falling Head Test procedure described in Section B.2.04 (Appendix B) of the 2014 City of Wilsonville Public Works Standards. Results of our infiltration testing are presented in the attached Appendix A.
- Classify the materials encountered in the explorations in accordance with American Society for Testing and Materials (ASTM) Soil Classification Method D2488 (visual-manual procedure).
- Collect representative soil samples from within the explorations in order to perform laboratory testing and to confirm our field classifications.
- Perform laboratory testing on selected samples collected during our subsurface exploration.
- Provide a technical narrative describing surface and subsurface deposits, and local geology of the site, based on the results of our explorations and published geologic mapping.
- Provide a site vicinity map and a site plan showing the locations of the explorations relative to existing site features.
- Provide logs of the explorations, including results of laboratory testing on selected soil samples.
- Provide preliminary geotechnical recommendations for site preparation and earthwork.
- Provide preliminary geotechnical engineering recommendations for design and construction of shallow spread foundations, retaining walls, floor slabs, and flexible pavements.
- Provide recommendations for the Seismic Site Class, mapped maximum considered earthquake spectral response accelerations, and site seismic coefficients.
- Provide a qualitative evaluation of seismic hazards at the site, including liquefaction potential, earthquake-induced settlement and landsliding, and surface rupture due to faulting or lateral spread.
- Provide this written report summarizing the results of our preliminary geotechnical investigation, infiltration testing, and recommendations for the project.

2.0 SITE DESCRIPTION

2.1 Site Geology

Based on available geologic mapping¹ of the area, the site is underlain by Pleistocene catastrophic flood deposits originating from glacial outburst floods of Lake Missoula. The Pleistocene Lake Missoula catastrophic flood deposits were produced by the periodic failure of glacial ice dams, which impounded Lake Missoula between 21,000 and 12,000 years ago. Floodwaters raged through eastern Washington and through the Columbia River Gorge. Near Rainier, Oregon, the river channel was restricted, causing floodwaters to back up the Willamette Valley as far as Eugene. Floodwaters in the Portland area were as much as 400 feet deep, leaving only the tops of the tallest hills dry. The flood deposits are typically split into three different facies; the coarse-grained facies, the fine-grained facies, and the channel facies, which

¹ Ma, Madin, Duplantis, and Williams, 2012, Lidar-based Surficial Geologic Map and Database of the Greater Portland, Oregon, Area, Clackamas, Columbia, Marion, Multnomah, Washington, and Yamhill Counties, Oregon, and Clark County, Washington Oregon Department of Geology and Mineral Industries Open-File Report O-12-02.

consists of silts, sands, and gravels deposited within the flood channel. Coarse-grained Missoula flood deposits (Mfc) are mapped in the vicinity of the site, which typically consist of sand and gravel.

2.2 Site Surface Conditions

The approximate 2.4-acre site was bordered by SW Parkway Avenue to the west, SW Trask Street to the north, and existing, developed commercial properties to the south and the east. The site descended gently to the southwest, with an overall vertical relief of approximately 20 feet. At the time of our field investigation, the central portion of the site was occupied by the Quality Inn – Wilsonville Motel, consisting of two structures (east and west wings), a lobby, a fitness center, and an outdoor swimming pool. The south portion of the site consisted of grass, walking paths, and landscaped areas, while the north portion of the site consisted primarily of paved parking areas with several tall, coniferous trees. Site photographs taken at the time of our fieldwork are attached as Figure 3.

3.0 FIELD INVESTIGATION

CGT completed the field investigation between June 14 and 15, 2016. The field investigation consisted of eight drilled borings, three test pits, two hand auger borings, seven hand-excavated test pits, and two infiltration tests. The approximate exploration locations are shown on the attached Site Plan, Figure 2. The exploration locations shown therein were determined based on measurements from existing site features (existing building corners, etc.) and should be considered approximate.

3.1 Machine-Drilled Borings

Borings B-1 through B-8 were advanced to depths ranging from about 10.3 to 15.4 feet bgs on June 14, 2016, using mud-rotary drilling techniques with a CME-850XR track-mounted drill rig, provided and operated by our subcontractor, Western States Soil Conservation of Hubbard, Oregon. Upon completion, the borings were backfilled with granular bentonite. The surface at borings B-1, B-2, and B-6 through B-8 was patched with cold-patch asphalt.

Standard Penetration Tests (SPTs) were conducted within the drilled borings using a split-spoon sampler in general accordance with ASTM D1586. The SPT is performed by driving a 2-inch, outside-diameter, split-spoon sampler into the undisturbed formation located at the bottom of the advanced boring with repeated blows of a 140 pound, automatic hammer falling a vertical distance of 30 inches. The number of blows (N-value) required to drive the sampler the last 12 inches of an 18-inch sample interval is used to characterize the soil consistency or relative density. The SPTs were conducted at 2½- to 5-foot intervals to the termination depths of the borings. In addition, a larger diameter (3-inch outside diameter) split spoon sampler (Modified California [MCAL]) was used at selected depths in the drilled borings to obtain more representative samples in the predominately gravel soils. Aside from these differences, the sampling procedure was the same as the SPT. Blow counts obtained from the MCAL sampler are generally higher than those that would be obtained using a standard sampler. Correlations to SPT N-values have been developed for use with MCAL samplers.

The CME-850XR drill rig was equipped with a 140-pound, automatic hammer, which was used to conduct the SPTs. It should be noted automatic hammers generally produce lower SPT values than those obtained using a traditional safety hammer (cathead). According to the driller, the automatic hammer on the CME-850XR drill rig had hammer efficiency (ETR_{hammer}) of 88.5 percent, resulting in an efficiency factor of about 1.5. We have considered this in our description of soil relative density and in our evaluation of soil

strength and compressibility. Field SPT “raw” values that have not been adjusted for hammer efficiency, as well as N_{60} values that have been adjusted for hammer efficiency, are listed on the attached boring logs.

3.2 Test Pits

CGT excavated three test pits (TP-1 through TP-3) at the site on June 15, 2016, to depths of up to about 5 feet bgs. The test pits were excavated using a Takeuchi TB230 tracked excavator with an 18-inch wide toothed bucket, provided and operated by CGT. Upon completion of logging and infiltration testing, the test pits were loosely backfilled with the excavated materials.

3.3 Hand Auger Borings

CGT advanced two hand auger borings (HA-1 and HA-2) at the site on June 14, 2016, to depths of up to about 3 feet bgs. The hand auger borings were advanced using a 3-inch diameter hand auger provided and operated by CGT. The presence of shallow gravels and cobbles precluded advancing the hand auger borings beyond a maximum depth of about 3 feet bgs. Upon completion, the hand auger borings were loosely backfilled with the excavated materials.

In conjunction with the hand auger borings, we performed five dynamic cone penetrometer tests to depths of up to about 4 feet bgs. The dynamic cone penetrometer tests were performed using a Wildcat Dynamic Cone Penetrometer (WDCP) provided and operated by CGT. The WDCP test consists of driving 1.1-inch-diameter, steel rods with a 1.4-inch-diameter, cone tip into the ground using a 35-pound drop hammer with a 15-inch, free-fall height. The number of blows required to drive the steel rods is recorded for each 10 centimeters (3.94 inches) of penetration. The blow count for each interval is then converted to the corresponding Standard Penetration Test (SPT) “ N_{60} ” values, which are used to estimate the soil relative consistency for cohesive soils, or relative density for non-cohesive soils. Practical refusal of the WDCP was met at depths of about 2½ to 4 feet bgs due to the presence of coarse-grained particles (i.e. gravels and cobbles).

3.4 Infiltration Testing

CGT performed a total of two infiltration tests (IT-1 and IT-2) at the site on June 15, 2016. The results of the infiltration tests are presented in the attached Appendix A.

3.5 Hand-Excavated Test Pits

CGT completed seven hand-excavated test pits at the site on June 14 and 15, 2016, adjacent to the existing east and west wing buildings. The purpose of these excavations was to evaluate the dimensions (outer width and bearing depth) of the existing foundations and subgrade conditions. These excavations were completed using a narrow trenching shovel. Upon completion of the excavation, a ½-inch diameter foundation probe was used to establish the extents of the footing in order to measure the footing embedment depth, as well as the outer footing width. Upon completion, the excavations were loosely backfilled with the excavated materials. Results of the hand-excavated test pits are summarized in Section 6.0 of this report.

3.6 Soil Classification & Sampling

Members of CGT’s staff logged the soils observed within the explorations in general accordance with the Visual-Manual Procedure (ASTM D2488) and collected representative samples of the materials encountered. An explanation of the Visual-Manual Procedure is presented on the attached Soil Classification Criteria and Terminology, Figure 4. The soil samples were stored in sealable plastic bags and transported to our laboratory for further examination and testing. Our staff visually examined all samples returned to our

laboratory in order to refine the field classifications. Logs of the explorations are presented on the attached Exploration Logs, Figures 5 through 17. Surface elevations indicated on the logs were estimated based on the available topography on Metro's Regional Land Information System (RLIS) data available from MetroMap website². Elevation contours identified from the referenced utility were compared and appeared consistent with our site observations. Elevations shown on the logs should be considered approximate.

4.0 LABORATORY TESTING

Laboratory testing was performed on samples collected in the field to refine our initial field classifications and determine in-situ parameters. Laboratory testing included:

- Ten moisture content determinations (ASTM D2216).
- Two percentage-passing the U.S. Standard No. 200 Sieve tests (ASTM D1140).
- Two Atterberg limits (plasticity index) tests (ASTM D4318).

Results of the laboratory tests are shown on the attached Exploration Logs, Figures 5 through 17.

5.0 SUBSURFACE CONDITIONS

5.1 Subsurface Materials

The following describes each of the subsurface materials encountered at the site.

5.1.1 Asphaltic Concrete Pavement

Asphaltic concrete (AC) pavement was encountered at the surface of drilled borings located in existing paved parking areas (i.e., B-1, B-2, B-6, B-7, and B-8). We measured a typical AC pavement thickness of approximately 2 inches at each of these locations.

5.1.2 Undocumented Poorly Graded Gravel Fill (GP Fill)

Undocumented poorly graded gravel fill (base rock) was encountered below the AC pavement in drilled borings B-1, B-2, B-6, B-7, and B-8 and extended to depths of about 1/3 to 1/2 foot bgs. Undocumented fill refers to materials placed without (available) records of subgrade conditions or evaluation of compaction. The gravel fill was generally gray, moist, and consisted of fine- to coarse-grained, angular to sub-angular (up to about 3/4-inch diameter) gravel.

5.1.3 Topsoil Fill

Topsoil fill was encountered at the surface of the following explorations: drilled borings B-3 through B-5; hand auger borings HA-1 and HA-2, and test pits TP-1 through TP-3. The topsoil fill generally consisted of rooted sandy silt (ML) that was brown, moist, low plasticity, with fine-grained sand, and contained varying amounts of fine, sub-angular gravel. Some of our explorations were completed within existing landscaped areas (i.e., B-3 through B-5, HA-1, and HA-2); in which case, the topsoil fill was overlain with approximately 2 inches of organic landscaping mulch consisting of shredded bark. The topsoil fill extended to approximate depths ranging from 1/2 to 1 foot bgs in the referenced explorations. The topsoil extended to the termination depth in test pit TP-1, about 1 foot bgs, due to encountering un-marked irrigation lines.

² Metro Regional Government, 2016. MetroMap Regional Land Information System (RLIS) data, accessed July, 2016, from Metro website: <http://gis.oregonmetro.gov/metromap/>.

5.1.4 Native Gravelly Silt (ML)

Underlying the poorly graded gravel fill or topsoil fill in B-1, B-3, B-4, B-5, B-8, HA-1, HA-2, and TP-3 was native gravelly silt. This soil was typically stiff to very stiff (based on WDCP tests conducted in HA-1 and HA-2), brown, moist, exhibited low plasticity, and contained varying amounts of sub-angular to sub-rounded rounded gravel up to about 3 inches. The gravelly silt extended to depths ranging from about 2 to 4 feet bgs. The gravelly silt extended to the termination depth in auger boring HA-2, about 1 foot bgs.

5.1.5 Native Lean Clay with Sand (CL)

Underlying the poorly graded gravel fill in drilled borings B-2 and B-6 was native lean clay with sand. The lean clay with sand was typically stiff, brown, moist, exhibited low to medium plasticity, and contained fine-grained sand. The lean clay with sand extended to a depth of about 4 feet bgs in borings B-2 and B-6.

5.1.6 Native Silty Gravel with Sand (GM)

Native silty gravel with sand was encountered below the native gravelly silt in B-1, B-3, B-4, B-5, B-8, HA-1, and TP-3, below the lean clay with sand in B-2 and B-6, below the poorly graded gravel fill in B-7, and below the topsoil in TP-2. The silty gravel with sand was typically dense to very dense, gray and brown, moist, consisting of sub-angular to rounded, coarse gravel, and contained abundant rounded cobbles. Several boulders up to about 24 inches in diameter were observed in TP-2 and TP-3 within this unit. The native silty gravel with sand extended to the maximum depths explored in the following explorations: drilled borings B-1 through B-5, B-7, and B-8 (up to about 11½ feet bgs); hand auger boring HA-1 (about 3 feet bgs); and test pit TP-3 (about 5 feet bgs). This soil graded into poorly graded gravel with silt and sand in B-6 at about 7½ feet bgs and to poorly graded sand with silt and gravel at about 4 feet bgs in TP-2 (description of both these materials provided below). This soil extended to the total depths explored in the remainder of the test pits, about 4 to 7 feet bgs.

5.1.7 Native Poorly Graded Gravel with Silt and Sand (GP-GM)

Underlying the native silty gravel with sand in B-6 was native poorly graded gravel with silt and sand. This soil was typically dense to very dense, gray and brown, moist, consisting of sub-angular to rounded, coarse gravel, with fine- to coarse-grained sand, and contained abundant rounded cobbles up to about 12 inches in diameter. This soil extended to the total depth explored in B-6, about 15½ feet bgs.

5.1.8 Native Poorly Graded Sand with Silt and Gravel (SP-SM)

Underlying the native silty gravel with sand in TP-2 was native poorly graded sand with silt and gravel. This soil was typically medium dense, gray and brown, moist, consisting of fine- to medium-grained sand, with coarse, sub-angular to sub-rounded gravel, and occasional rounded cobbles up to about 6 inches in diameter. This soil extended to the total depth explored in TP-2, about 5 feet bgs.

The native soils listed above were consistent with descriptions by others of the coarse-grained Missoula flood deposits mapped in the area.

5.2 **Groundwater**

Groundwater was not encountered during our exploration on June 14 and 15, 2016. To develop a further understanding of groundwater levels in the region, we researched available well logs located within

Section 23, Township 3 South, Range 1 West on the Oregon Water Resources Department (OWRD)³ website. Our review indicated that groundwater levels were generally on the order of 20 feet bgs in the vicinity of the site. Groundwater levels vary with local topography. In addition, the groundwater levels reported on the OWRD logs often reflect the purpose of the well, so water well logs may only report deeper, confined groundwater, while geotechnical or environmental borings will often report any groundwater encountered, including shallow, unconfined groundwater. Therefore, the levels reported on the OWRD well logs referenced above are considered generally indicative of local water levels and may not reflect actual groundwater levels at the project site. We anticipate that groundwater levels will fluctuate due to seasonal and annual variations in precipitation, changes in site utilization, or other factors. Additionally, the native coarse-grained Missoula flood deposits containing high concentrations of silt are conducive to formation of perched groundwater.

6.0 EXISTING FOUNDATION CONDITIONS

CGT completed seven hand-excavated test pits at the site on June 14 and 15, 2016, adjacent to the existing east and west wing buildings, to evaluate the dimensions (outer width and bearing depth) of the existing perimeter foundations and subgrade conditions. The results of our hand-excavated test pits are summarized in the table below.

Table 1 Results of Hand-Excavated Test Pits¹

Exploration	Embedment Depth (inches bgs) ²	Outer Width (inches) ³	Footing Thickness (inches)	Notes / Observations
HE-1	35	3	6 ⁴	Footing underlain by dense gravel, based on probing observations (i.e., possibly native).
HE-2	N/A	N/A	N/A	Unable to locate existing footing after digging to about 2½ feet bgs and subsequently probing an additional 1½ feet. Possibly in area of existing basement.
HE-3	32	4	8	Based on probing, the footing is underlain by about 4 inches of ¾-inch minus crushed rock, which is underlain by dense gravels (possibly native).
HE-4	29	4	8	Footing subgrade probed medium stiff and consisted of brown sandy silt with occasional roots.
HE-5	33	3	8	Based on probing, the footing is underlain by dense ¾-inch minus crushed rock.
HE-6	N/A	N/A	N/A	Unable to locate existing footing after digging to about 2¼ feet bgs and subsequently probing an additional 1 foot. Cobbles and boulders encountered in excavation.
HE-7	N/A	N/A	N/A	HE-7 abandoned - irrigation / water line encountered at about 6 inches bgs.
<ol style="list-style-type: none"> 1. Measurements recorded during hand-excavated test pits should be considered approximate. 2. Footing embedment depth was measured depth from the existing adjacent ground surface to the bottom of the footing. 3. Outer width of the footing was measured from the outside edge of the wall stem to the outside edge of the footing. 4. Footing thickness reported is based on probing (i.e., not directly measured). 				

³ Oregon Water Resources Department, 2016. Water well logs obtained from OWRD website <http://www.wrd.state.or.us/>

7.0 SEISMIC CONSIDERATIONS

7.1 Seismic Design

Section 1613.3.2 of the 2014 Oregon Structural Specialty Code (2014 OSSC) requires that the determination of the seismic site class be based on subsurface data in accordance with Chapter 20 of the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures (ASCE 7). Based on the results of the explorations and review of geologic mapping, we have assigned the site as Site Class D for the subsurface conditions encountered. Earthquake ground motion parameters for the site were obtained based on the United States Geological Survey (USGS) Seismic Design Values for Buildings - Ground Motion Parameter Web Application⁴. The site Latitude 45.29729° North and Longitude 122.76818° West were input as the site location. The following table shows the recommended seismic design parameters for the site.

Table 2 Seismic Ground Motion Values (Section 1613.5 of 2014 OSSC)

Parameter		Value
Mapped Acceleration Parameters	Spectral Acceleration, 0.2 second (S_s)	0.922g
	Spectral Acceleration, 1.0 second (S_1)	0.409g
Coefficients (Site Class D)	Site Coefficient, 0.2 sec. (F_A)	1.131
	Site Coefficient, 1.0 sec. (F_V)	1.591
Adjusted MCE Spectral Response Parameters	MCE Spectral Acceleration, 0.2 sec. (S_{MS})	1.043g
	MCE Spectral Acceleration, 1.0 sec. (S_{M1})	0.650g
Design Spectral Response Accelerations	Design Spectral Acceleration, 0.2 seconds (S_{DS})	0.695g
	Design Spectral Acceleration, 1.0 second (S_{D1})	0.434g
Seismic Design Category		D

7.2 Seismic Hazards

7.2.1 Liquefaction

In general, liquefaction occurs when deposits of loose/soft, saturated, cohesionless soils, generally sands and silts, are subjected to strong earthquake shaking. If these deposits cannot drain quickly enough, pore water pressures can increase, approaching the value of the overburden pressure. The shear strength of a cohesionless soil is directly proportional to the effective stress, which is equal to the difference between the overburden pressure and the pore water pressure. When the pore water pressure increases to the value of the overburden pressure, the shear strength of the soil approaches zero, and the soil can liquefy. The liquefied soils can undergo rapid consolidation or, if unconfined, can flow as a liquid. Structures supported by the liquefied soils can experience rapid, excessive settlement, shearing, or even catastrophic failure.

For fine-grained soils, susceptibility to liquefaction is evaluated based on penetration resistance and plasticity, among other characteristics. Criteria for identifying non-liquefiable, fine-grained soils are constantly evolving. Current practice⁵ to identify non-liquefiable, fine-grained soils is based on plasticity characteristics of the soils, as follows: (1) liquid limit greater than 47 percent, (2) plasticity index greater than 20 percent, and (3) moisture content less than 85 percent of the liquid limit. The susceptibility of sands,

⁴ United States Geological Survey, 2016. Seismic Design Parameters determined using: "U.S. Seismic Design Maps Web Application - Version 3.1.0," from the USGS website <http://geohazards.usgs.gov/designmaps/us/application.php>.

⁵ Seed, R.B. et al., 2003. Recent Advances in Soil Liquefaction Engineering: A Unified and Consistent Framework. Earthquake Engineering Research Center Report No. EERC 2003-06.

gravels, and sand-gravel mixtures to liquefaction is typically assessed based on penetration resistance, as measured using SPTs, CPTs, or Becker Hammer Penetration tests (BPTs).

Based on the relatively shallow depth to dense to very dense, gravels, the soils encountered at the site are considered non-liquefiable within the depths explored.

7.2.2 Slope Instability

Due to the relatively minor anticipated/assumed changes in site grade and the overall gently-sloping topography, we conclude the risk of seismically-induced slope instability at the site is low.

7.2.3 Surface Rupture

7.2.3.1 Faulting

Although the site is situated in a region of the country with known active faults and historic seismic activity, no known faults exist on or immediately adjacent to the site. Therefore, the risk of surface rupture at the site due to faulting is considered low.

7.2.3.2 Lateral Spread

Surface rupture due to lateral spread can occur on sites underlain by liquefiable soils that are located on or immediately adjacent to slopes steeper than about 3 degrees (20H:1V), and/or adjacent to a free face, such as a stream bank or the shore of an open body of water. During lateral spread, the materials overlying the liquefied soils are subject to lateral movement downslope or toward the free face. Given the lack of liquefiable soils at the site, the relatively flat to gentle topography and the absence of a free face, the risk of surface rupture due to lateral spread is considered negligible.

8.0 CONCLUSIONS

Based on the results of our field explorations and analyses, the site may be developed as described in Section 1.1 of this report, provided the recommendations presented in this report are incorporated into the design and development. The primary geotechnical considerations for this project include:

- Minimum Footing Width: The referenced construction drawings from 1986 show the continuous perimeter footings to have a width of 16 inches and a thickness of 8 inches. Based on Section 1809 of the 2014 OSSC, the minimum footing width for a 3-story structure (assuming light-frame construction) is 18 inches, with a minimum thickness of 8 inches. Based on the results of our hand-excavated test pits (as summarized in Section 6.0), the existing continuous perimeter footings measured between 12 and 14 inches wide (assuming symmetry and a wall thickness of 6 inches, as shown on the construction plans) with a typical measured thickness of 8 inches. Geotechnical recommendations for minimum footing width and embedment are presented in Section 9.5.2 of this report.
- Cobbles and Boulders at Foundation/Floor Slab/Pavement Subgrade: Based on our explorations, abundant cobbles and isolated boulders may be encountered at design subgrade elevations for shallow foundations, floor slabs, or pavements. Structural elements placed directly on boulders and cobbles can result in uneven ground response. To minimize this potential, CGT recommends:
 - Boulders encountered during foundation, floor slab, and pavement subgrade preparation should be removed in their entirety and replaced with granular structural fill.
 - Foundation subgrades should be covered with a minimum of 3 inches of imported granular structural fill compacted to a well-keyed condition.

- Existing Undocumented Fill & Structures: Existing undocumented fill and structures (including the existing lobby building and any other structures to be demolished) should be removed prior to redevelopment of the site. Recommendations for demolition are presented in Section 9.1.1 of this report.
- Moisture Sensitive Soils: The near-surface, native gravelly silt (ML), lean clay with sand (CL), and silty gravel with sand (GM) encountered at the site contain a high percentage of fines and are sensitive to small changes in moisture content, and can pose challenges for earthwork performed during wet weather. Recommendations for wet weather construction are presented in Section 9.3 of this report.

9.0 PRELIMINARY RECOMMENDATIONS

The following paragraphs present preliminary geotechnical recommendations for design and construction of the proposed project. The recommendations presented in this report are based on the information provided to us, results of the field investigation, laboratory data, and professional judgment. CGT has observed only a small portion of the pertinent subsurface conditions. The recommendations are based on the assumption that the subsurface conditions do not deviate appreciably from those found during the field investigation. CGT should be consulted for further recommendations if variations and/or undesirable geotechnical conditions are encountered at the site.

This report is considered preliminary, as we have not reviewed final grading plans, finished floor elevations, and/or detailed structural information for the development. An addendum indicating that this report is final, and including supplemental recommendations, if warranted, can be issued after we have reviewed those items.

9.1 Site Preparation

9.1.1 Demolition

Demolition of the existing structures should include complete removal of all structural elements, including foundations and concrete slabs. Abandoned buried utilities should similarly be removed or grouted full. Concrete debris resulting from demolition may be re-used as structural fill, provided it is processed in accordance with the recommendations presented in Section 9.4.1 of this report. Alternatively, demolition debris should be hauled off site for disposal.

9.1.2 Site Stripping

Existing asphalt pavements and undocumented fill (GP Fill and Topsoil Fill), as well as vegetation (where present) should be removed from within, and for a minimum 5-foot margin around any new proposed structures and pavement areas. Based on the results of our field explorations, poorly graded gravel fill (underlying existing pavement areas) stripping depths are anticipated to be about ½ foot bgs, and topsoil stripping depths at the site are anticipated to be on the order of ½ to 1 foot bgs. These materials may be deeper or shallower at locations away from the completed explorations. A representative from CGT should provide recommendations for actual stripping depths based on observations during site stripping. Stripped surface vegetation and rooted soils should be transported off-site for disposal, or stockpiled for later use in landscaped areas. Stripped AC pavement may be re-used as structural fill provided it is processed in accordance with the recommendations presented in Section 9.4.1.1 of this report. Stripped gravel fill soils may be re-used as structural fill (per Section 9.4.1.2) or hauled offsite for disposal.

9.1.3 Grubbing

Grubbing of trees should include the removal of the root mass and roots greater than ½-inch in diameter. Grubbed materials should be transported off-site for disposal. Root masses from larger trees may extend greater than 3 feet bgs. Where root masses are removed, the resulting excavation should be properly backfilled with structural fill in conformance with Section 9.4 of this report.

9.1.4 Existing Utilities & Below-Grade Structures

All existing utilities at the site should be identified prior to excavation. Abandoned utility lines beneath new buildings, pavements, and hardscaping should be completely removed or grouted full. Soft, loose, or otherwise unsuitable soils encountered in utility trench excavations should be removed and replaced with structural fill as described in Section 9.4 of this report. If encountered during site preparation, buried structures (i.e. footings, foundation walls, slabs-on-grade, tanks, etc.) should be completely removed and disposed of off-site except for concrete which may, alternatively, be processed for re-use as described in Section 9.4.1.1. Resulting excavations should be backfilled with structural fill as described in Section 9.4 of this report, as needed to achieve design grades.

9.1.5 Erosion Control

Erosion and sedimentation control measures should be employed in accordance with applicable City, County and State regulations regarding erosion control.

9.2 Temporary Excavations

9.2.1 Overview

Conventional earthmoving equipment in proper working condition should be capable of making necessary excavations into the on-site soils. All excavations should be in accordance with applicable OSHA and state regulations. It is the contractor's responsibility to select the excavation methods, to monitor site excavations for safety, and to provide any shoring required to protect personnel and adjacent improvements. A "competent person", as defined by OR-OSHA, should be on site during construction in accordance with regulations presented by OR-OSHA. CGT's current role on the project does not include review or oversight of excavation safety.

9.2.2 OSHA Soil Class

For use in the planning and construction of temporary excavations up to 8 feet in depth at the site, an OSHA soil type "C" should be used for the native coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM).

9.2.3 Utility Trenches

Temporary trench cuts should stand near vertical to depths of approximately 4 feet in the on-site native coarse-grained flood deposits. Some instability may occur in these soils if groundwater seepage is encountered. If seepage undermines the stability of the trench, or if sidewall caving is observed during excavation, the sidewalls should be flattened or shored. Although not anticipated, depending on the time of year trench excavations occur, trench dewatering may be required in order to maintain dry working conditions, particularly if the invert elevations of the proposed utilities are below the groundwater level. If groundwater is present at the base of utility excavations, we recommend placing trench stabilization material

at the base of the excavations. Trench stabilization material should be in conformance with Section 9.4.3 of this report.

9.2.4 Excavations Near Existing Foundations

Temporary excavations near existing footings should not extend within a 1H:1V (horizontal to vertical) plane projected out and down from the outside, bottom edge of the footings. In the event that excavation needs to extend below the referenced plane, temporary shoring of the excavation and/or underpinning of the footing may be required. The geotechnical engineer should be consulted to review proposed excavation plans for this design case to provide specific recommendations.

9.3 **Wet Weather Considerations**

For planning purposes, the wet season should be considered to extend from late September to late June. It is our experience that dry weather working conditions should prevail between early July and the middle of September. Notwithstanding the above, soil conditions should be evaluated in the field by the geotechnical engineer or his representative at the initial stage of site preparation to determine whether the recommendations within this section should be incorporated into construction.

9.3.1 General Considerations

The near-surface, native coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM) containing high percentages of fines encountered within our explorations are susceptible to disturbance during wet weather. Trafficability of these soils may be difficult, and significant damage to subgrade soils will likely occur, if earthwork is undertaken without proper precautions at times when the exposed soils are more than a few percentage points above optimum moisture content. For construction that occurs during the wet season, methods to limit soil disturbance should be employed. Site preparation activities may need to be accomplished using track-mounted equipment, loading removed material onto trucks supported on granular haul roads. Soils that have been disturbed during site preparation activities should be over-excavated to firm, stable subgrade, and replaced with imported granular structural fill.

9.3.2 Geotextile Separation Fabric

We recommend placing geotextile separation fabric to serve as a barrier between the fine-grained subgrade and imported fill in areas of repeated or heavy construction traffic. The geotextile fabric should be in conformance with Section 02320 of the current Oregon Department of Transportation (ODOT) Standard Specification for Construction. Please refer to Table 02320-4 of the 2015 ODOT specifications for specific requirements.

9.3.3 Granular Working Surfaces (Haul Roads & Staging Areas)

Haul roads subjected to repeated heavy, tire-mounted, construction traffic (e.g. dump trucks, concrete trucks, etc.) will require a minimum of 18 inches of imported granular material. For light staging areas, 12 inches of imported granular material should be sufficient. Additional granular material or geo-grid reinforcement may be recommended based on site conditions and/or loading at the time of construction. The imported granular material should be in conformance with Section 9.4.2 of this report and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. The prepared subgrade should be covered with geotextile fabric prior to placement of the imported granular material. The imported granular material should be placed in a single lift (up to 24 inches deep) and compacted using a smooth-drum, non-vibratory roller until well-keyed.

9.3.4 Footing Subgrade Protection

A minimum of 3 inches of imported granular material is recommended to protect fine-grained, footing subgrades from foot traffic during inclement weather. The imported granular material should be in conformance with Section 9.4.2 of this report. The maximum particle size should be limited to 1 inch. The imported granular material should be placed in one lift over the prepared, undisturbed subgrade, and compacted using non-vibratory equipment until well keyed.

9.4 **Structural Fill**

The geotechnical engineer should be provided the opportunity to review all materials considered for use as structural fill a minimum of five business days prior to placement. Samples of the proposed structural fill materials should be submitted to the geotechnical engineer for testing a minimum of five business day prior to use on site.

The geotechnical engineer or his representative should be contacted to evaluate compaction of structural fill as the material is being placed. Evaluation of compaction may take the form of in-place density tests and/or proof-roll tests with suitable equipment. Compaction of structural fill should be evaluated at intervals not exceeding every 2 vertical feet as the fill is being placed.

9.4.1 On-Site Soils (General Use)

9.4.1.1 Concrete & AC Debris

Concrete and asphaltic concrete (AC) debris resulting from the demolition of existing pavements and other features (foundations, floor slabs, sidewalks, etc.) can be re-used as structural fill if processed/crushed into material that is fairly well graded between coarse and fine. The processed/crushed concrete and/or asphalt should contain no organic matter, debris, or particles larger than 4 inches in diameter. Moisture conditioning (wetting) should be expected in order to achieve adequate compaction. When used as structural fill, this material should be placed and compacted in general accordance with Section 9.4.2 of this report.

9.4.1.2 Undocumented Poorly Graded Gravel Fill (GP Fill)

Re-use of the gravel fill materials (base rock underlying the existing pavements) as structural fill is feasible, provided they can be kept free of debris, deleterious materials, and particles larger than 4 inches in diameter. If used as structural fill, these materials should be prepared in conformance with Section 9.4.2 of this report.

9.4.1.3 Native Gravelly Silt (ML), Native Silty Sand with Gravel (GM), and Poorly Graded Gravel with Silt and Sand (GP-GM)

Re-use of these on-site soils as structural fill may be difficult because these soils are sensitive to small changes in moisture content and are difficult, if not impossible, to adequately compact during wet weather. We anticipate that the moisture content of these soils will be higher than the optimum moisture content for satisfactory compaction. Therefore, moisture conditioning (drying) should be expected in order to achieve adequate compaction. If used as structural fill, these soils should be free of organic matter, debris, and particles larger than 4 inches. Processing of the on-site gravelly soils should include removal of cobbles and boulders in excess of 4 inches in diameter. When used as structural fill, these soils should be placed in lifts with a maximum thickness of about 8 inches at moisture contents within -1 and +3 percent of optimum, and compacted to not less than 95 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor).

If the on-site soils cannot be properly moisture-conditioned and/or processed, we recommend using imported granular material for structural fill.

9.4.2 Imported Granular Structural Fill (General Use)

Imported granular structural fill should consist of angular pit or quarry run rock, crushed rock, or crushed gravel that is fairly well graded between coarse and fine particle sizes. The granular fill should contain no organic matter, debris, or particles larger than 1½ inches, and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. The percentage of fines can be increased to 12 percent of the material passing the U.S. Standard No. 200 Sieve if placed during dry weather, and provided the fill material is moisture-conditioned, as necessary, for proper compaction. Granular fill material should be placed in lifts with a maximum thickness of about 12 inches, and compacted to not less than 95 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor). Proper moisture conditioning and the use of vibratory equipment will facilitate compaction of these materials.

Compaction of granular fill materials with high percentages of particle sizes in excess of 1½ inches should be evaluated by periodic proof-roll observation or continuous observation by the CGT geotechnical representative during fill placement, since it cannot be tested conventionally using a nuclear densometer. Such materials should be "capped" with a minimum of 12 inches of 1½-inch-minus (or finer) granular fill under all structural elements (footings, concrete slabs, etc.).

9.4.3 Trench Base Stabilization Material

If groundwater is present at the base of utility excavations, stabilization material should be placed to help stabilize the base of the trench. Trench base stabilization material should consist of at least 1 foot of well-graded granular material with a maximum particle size of 4 inches and less than 5 percent material passing the U.S. Standard No. 4 Sieve. The material should be free of organic matter and other deleterious material, placed in one lift, and compacted until well-keyed.

9.4.4 Trench Backfill Material

Trench backfill for the utility pipe base and pipe zone should consist of granular material as recommended by the utility pipe manufacturer. Trench backfill above the pipe zone should consist of well-graded granular material containing no organic matter or debris, have a maximum particle size of ¾ inch, and have less than 8 percent material passing the U.S. Standard No. 200 Sieve. As a guideline, trench backfill should be placed in maximum 12-inch thick lifts. The earthwork contractor may elect to use alternative lift thicknesses based on their experience with specific equipment and fill material conditions during construction in order to achieve the required compaction. The following table presents recommended relative compaction percentages for utility trench backfill.

Table 3 Utility Trench Backfill Compaction Recommendations

Backfill Zone	Recommended <u>Minimum</u> Relative Compaction	
	Structural Areas ¹	Landscaping Areas
Pipe Base and Within Pipe Zone	90% ASTM D1557 or pipe manufacturer's recommendation	88% ASTM D1557 or pipe manufacturer's recommendation
Above Pipe Zone	92% ASTM D1557	90% ASTM D1557
Within 3 Feet of Design Subgrade	95% ASTM D1557	90% ASTM D1557
¹ Includes proposed buildings, pavements, hardscaping, etc.		

9.4.5 Controlled Low-Strength Material (CLSM)

CLSM is a self-compacting, cementitious material that is typically considered when backfilling localized areas. CLSM is sometimes referred to as “controlled density fill” or CDF. Due to its flowable characteristics, CLSM typically can be placed in restricted-access excavations where placing and compacting fill is difficult. If chosen for use at this site, we recommend the CLSM be in conformance with Section 00442 of the most recent, State of Oregon, Standard Specifications for Highway Construction. The geotechnical engineer’s representative should observe placement of the CLSM and obtain samples for compression testing in accordance with ASTM D4832. As a guideline, for each day’s placement, two compressive strength specimens from the same CLSM sample should be tested. The results of the two individual compressive strength tests should be averaged to obtain the reported 28-day compressive strength. If CLSM is considered for use on this site, please contact the geotechnical engineer for site-specific and application-specific recommendations.

9.5 New Shallow Foundations

The following sections pertain to new shallow foundations only.

Once detailed structural information is available (i.e., number of stories to be added and anticipated loading), CGT should be contacted to assess the suitability and available bearing capacity of the existing continuous foundations. This will be required in order to provide geotechnical recommendations for retro-fitting existing foundations on a case-by-case basis.

9.5.1 Subgrade Preparation

Satisfactory subgrade support for shallow foundations can be obtained on the native, coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM), or new structural fill that is properly placed and compacted on these materials during construction. Boulders encountered during foundation excavation should be removed and replaced with granular structural fill. The geotechnical engineer or his representative should be contacted to observe subgrade conditions prior to placement of forms, reinforcement steel, or granular backfill (if required). If soft, loose, or otherwise unsuitable soils are encountered, they should be over-excavated as recommended by the geotechnical representative at the time of construction. The resulting over-excavation should be brought back to grade with imported granular structural fill in conformance with Section 9.4.2 of this report. The maximum particle size of over-excavation backfill should be limited to 1½ inches. All granular pads for footings should be constructed a minimum of 6 inches wider on each side of the footing for every vertical foot of over-excavation.

9.5.2 Minimum Footing Width & Embedment

Minimum footing widths should be in conformance with the most recent, Oregon Structural Specialty Code (OSSC). As a guideline, CGT recommends individual spread footings have a minimum width of 24 inches. Similarly, for three-story and four-story, light-framed structures, we recommend continuous wall footings have a minimum width of 18 and 24 inches, respectively. All footings should be founded at least 18 inches below the lowest, permanent adjacent grade.

9.5.3 Bearing Pressure & Settlement

New footings founded as recommended above should be proportioned for a maximum allowable soil bearing pressure of 4,000 pounds per square foot (psf). This bearing pressure is a net bearing pressure, applies to the total of dead and long-term live loads, and may be increased by one-third when considering seismic or wind loads. For the recommended design bearing pressure, total settlement of footings is anticipated to be less than 1 inch. Differential settlements between adjacent columns and/or bearing walls should not exceed ½-inch.

9.5.4 Lateral Capacity

A maximum passive (equivalent-fluid) earth pressure of 150 pounds per cubic foot (pcf) is recommended for design for footings confined by the native soils described above or imported granular structural fill that is properly placed and compacted during construction. The recommended earth pressure was computed using a factor of safety of 1½, which is appropriate due to the amount of movement required to develop full passive resistance. In order to develop the above capacity, the following should be understood:

1. Concrete must be poured neat in the excavation or the perimeter of the foundation must be backfilled with imported granular structural fill,
2. The adjacent grade must be level or rising away from the footing,
3. The static ground water level must remain below the base of the foundation throughout the year, and
4. Adjacent development (e.g. slabs, pavements, etc.) and/or the upper 12 inches of adjacent unpaved, structural fill areas should not be considered when calculating passive resistance.

An ultimate coefficient of friction equal to 0.35 may be used when calculating resistance to sliding for footings founded on native soils. This value may be increased to 0.45 for footings founded on a minimum of 6 inches of imported granular structural fill (crushed rock) that is properly placed and compacted during construction.

9.5.5 Subsurface Drainage

Recognizing the significant fine-grained fraction of the near-surface soils encountered at this site, placement of foundation drains is recommended at the outside base elevations of perimeter continuous wall footings. Foundation drains should consist of a minimum 4-inch diameter, perforated, PVC drainpipe wrapped with a non-woven geotextile filter fabric. The drains should be backfilled with a minimum of 2 cubic feet of open graded drain rock per lineal foot of pipe. The drain rock should also be encased in a geotextile fabric in order to provide separation from the surrounding soils. Foundation drains should be positively sloped and should outlet to a suitable discharge point. The geotechnical engineer or his representative should observe the drains prior to backfilling. Roof drains should not be tied into foundation drains.

9.6 New Rigid Retaining Walls

9.6.1 Footings

Retaining wall footings should be designed and constructed in conformance with the recommendations presented in Section 9.5 of this report, as applicable.

9.6.2 Wall Drains

We recommend placing a retaining wall drain at the base elevation of the heel of the retaining wall footing. Retaining wall drains should consist of a minimum 4-inch-diameter, perforated, HDPE (High Density Polyethylene) drainpipe wrapped with a non-woven geotextile filter fabric. The drains should be backfilled with a minimum of 2 cubic feet of open graded drain rock per lineal foot of pipe. The drain rock should also be encased in a geotextile fabric in order to provide separation from the surrounding soils. Retaining wall drains should be positively sloped and should outlet to a suitable discharge point. The geotechnical engineer or his representative should be contacted to observe the drains prior to backfilling. Roof or area drains should not be tied into retaining wall drains.

9.6.3 Retaining Wall Backfill

Retaining walls should be backfilled with imported granular structural fill in conformance with Section 9.4.2 and contain less than 5 percent passing the U.S. Standard No. 200 Sieve. In landscape and structural areas, the backfill should be compacted to a minimum of 90 percent of the material's maximum dry density as determined in general accordance with ASTM D1557 (Modified Proctor). When placing fill behind walls, care must be taken to minimize undue lateral loads on the walls. Heavy compaction equipment should be kept at least "H" feet from the back of the walls, where "H" is the height of the fill above the top of the wall foundation. Light mechanical or hand tamping equipment should be used for compaction of backfill materials within "H" feet of the back of the walls.

9.6.4 Design Parameters & Limitations

For rigid retaining walls founded, backfilled with imported crushed granular fill, and drained as recommended above, the following table presents parameters recommended for design.

Table 4 Recommended Design Parameters for Rigid Retaining Walls

Retaining Wall Condition	Backfill Condition	Static Equivalent Fluid Pressure (S _A)	Seismic Equivalent Fluid Pressure (S _{AE})
Not Restrained from Rotation	Level (i = 0)	29 pcf	41 pcf
Restrained from Rotation	Level (i = 0)	52 pcf	56 pcf
<p><u>Note 1.</u> Refer to the attached Figure 18 for a graphical representation of static and seismic loading conditions. Seismic component of active thrust acts at 0.6H above the base of the wall.</p> <p><u>Note 2.</u> Seismic / dynamic lateral loads were computed using the Mononobe-Okabe Equation as presented in the 1997 Federal Highway Administration (FHWA) design manual.</p>			

The above design recommendations are based on the assumptions that:

- (1) the walls consist of concrete cantilevered retaining walls ($\beta = 0$ and $\delta = 24$ degrees, see Figure 18).
- (2) the walls are 10 feet or less in height.

- (3) the backfill is drained and consists of imported crushed granular structural fill ($\phi = 38$ degrees).
- (4) no line, point, or area load surcharges are imposed behind the walls.
- (5) the grade behind the wall is level, or sloping down and away from the wall, for a distance of 10 feet or more from the wall.
- (6) the grade in front of the walls is level or sloping up for a distance of at least 5 feet from the wall.

Re-evaluation of our recommendations will be required if the retaining wall design criteria for the project vary from these assumptions.

9.7 Floor Slabs

9.7.1 Subgrade Preparation

Satisfactory subgrade support for floor slabs constructed on grade, supporting up to 150 psf area loading, can be obtained from the native, coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM), or on structural fill that is properly placed and compacted on these materials during construction. The geotechnical engineer or his representative should observe floor slab subgrade soils to evaluate surface consistencies. If soft, loose, or otherwise unsuitable soils are encountered, they should be over-excavated as recommended by the CGT geotechnical representative at the time of construction. The resulting over-excavation should be brought back to grade with imported granular structural fill as described in Section 9.4.2 of this report.

9.7.2 Floor Slab Base Rock

Concrete floor slabs should be supported on a minimum 6-inch thick layer of crushed rock.

9.7.2.1 Floor Slabs in Non-Habitable Areas

Floor slab base rock under slabs in non-habitable areas (i.e. garages, exterior slabs, etc.) should consist of well-graded granular material (crushed rock) containing no organic matter or debris, have a maximum particle size of ¾-inch, and have less than 5 percent material passing the U.S. Standard No. 200 Sieve. Floor slab base rock should be placed in one lift and compacted to not less than 90 percent of the material's maximum dry density as determined in general accordance with ASTM D1557 (Modified Proctor). We recommend "choking" the surface of the base rock with fine sand just prior to concrete placement. Choking means the voids between the largest aggregate particles are filled with sand, but does not provide a layer of sand above the base rock. Choking the base rock surface reduces the lateral restraint on the bottom of the concrete during curing. Choking the base rock also reduces punctures in vapor retarding membranes due to foot traffic where such membranes are used.

9.7.2.2 Floor Slabs in Habitable Areas

Floor slab base rock in areas where radon gas collection is desired (i.e. under floor slabs within living spaces) should be supported on a minimum 6-inch-thick layer of gas-permeable base rock. The gas-permeable base rock should consist of open-graded crushed rock containing no organic matter or debris, with all material passing through a 2-inch sieve and retained on the ¼-inch sieve, in accordance with Section 1812.3.2, Bullet 1, of the 2014 OSSC.

Section 1812.3.3 of the 2014 OSSC recommends that a minimum 6-mil polyethylene sheeting (or 3-mil cross-laminated polyethylene sheeting), or equivalent material with equal or greater resistance to puncture, be placed on top of the gas-permeable base rock to act as a soil-gas-retarder. Placement and installation of this sheeting should be in conformance with that indicated in Section 1812.3.3 of the 2014 OSSC.

The geotechnical engineer or his representative should be contacted to observe gas-permeable base rock conditions prior to placement of the soil-gas-retarder.

9.7.3 Design Considerations

For floor slabs constructed as recommended, an equivalent modulus of subgrade reaction of 100 pounds per cubic inch (pci) is recommended for the design of the floor slab. If a higher equivalent modulus of subgrade reaction value is required, this can be achieved with a thicker base rock section below the slab. Please consult the geotechnical engineer if alternative values are needed. Floor slabs constructed as recommended will likely settle less than ½-inch. For general floor slab construction, slabs should be jointed around columns and walls to permit slabs and foundations to settle differentially.

9.7.4 Subgrade Moisture Considerations

Liquid moisture and moisture vapor should be expected at the subgrade surface. The crushed rock base recommended above typically serves as a capillary break and provides protection against liquid moisture. Where moisture vapor emission through the slab must be minimized, e.g. impervious floor coverings, storage of moisture sensitive materials directly on the slab surface, etc., a vapor retarding membrane or vapor barrier below the slab should be considered. Factors such as cost, special considerations for construction, floor coverings, and end use suggest that the decision regarding a vapor retarding membrane or vapor barrier be made by the architect and owner.

If a vapor retarder or vapor barrier is placed below the slab, its location should be based on current American Concrete Institute (ACI) guidelines, ACI 302 Guide for Concrete Floor and Slab Construction. In some cases, this indicates placement of concrete directly on the vapor retarder or barrier. Please note that the placement of concrete directly on impervious membranes increases the risk of plastic shrinkage cracking and slab curling in the concrete. Construction practices to reduce or eliminate such risk, as described in ACI 302, should be employed during concrete placement.

9.8 Flexible Pavements

9.8.1 Subgrade Preparation

Satisfactory subgrade support for flexible pavements can be obtained from the native, coarse-grained Missoula flood deposits (ML, CL, GM, and GP-GM), or on structural fill that is properly placed and compacted on these materials during construction. If soft, loose, or otherwise unsuitable soils are encountered, they should be over-excavated as recommended by the CGT geotechnical representative at the time of construction. The resulting over-excavation should be brought back to grade with imported granular structural fill as described in Section 9.4.2 of this report. Pavement subgrade surfaces should be crowned (or sloped) for proper drainage in accordance with specifications provided by the project civil engineer.

9.8.1.1 Dry Weather Construction

After site preparation as recommended above, but prior to placement of fill and/or base rock, the geotechnical engineer or his representative should observe a proof roll test of the exposed subgrade soils in order to identify areas of excessive yielding. Proof rolling of subgrade soils is typically conducted during dry weather conditions using a fully-loaded, 10- to 12-cubic-yard, tire-mounted, dump truck or equivalent weighted water truck. Areas that appear too soft and wet to support proof rolling equipment should be prepared in general accordance with the recommendations for wet weather construction presented in Section 9.3 of this report. If areas of soft soil or excessive yielding are identified, the affected material should

be over-excavated to firm, stable subgrade, and replaced with imported granular structural fill in conformance with Section 9.4.2 of this report.

9.8.1.2 Wet Weather Construction

Preparation of pavement subgrade soils during wet weather should be in conformance with Section 9.3 of this report. As indicated therein, increased base rock sections and a geotextile separation fabric may be required in wet conditions in order to support construction traffic and protect the subgrade.

9.8.2 Input Parameters

Design of the flexible pavement sections presented below was based on the parameters presented in the following table and the American Association of State Highway and Transportation Officials (AASHTO) 1993 “Design of Pavement Structures” manual and the Asphalt Paving Association of Oregon (APAO) 1998 “Asphalt Paving Design Guide” (revised in October 2003). If any of the items listed need revised, please contact us and we will reassess the provided design sections.

Table 5 Input Parameters Assigned for Pavement Design

Input Parameter	Design Value ¹	Input Parameter	Design Value ¹	
Pavement Design Life	20 years	Resilient Modulus ⁴	Subgrade	5,000 psi
Annual Percent Growth	0 percent		Crushed Aggregate Base	22,500 psi
Serviceability	4.2 initial, 2.5 terminal	Structural Coefficient ²	Crushed Aggregate Base	0.10
Reliability ²	75 percent		Asphalt	0.42
Standard Deviation ²	0.49	Vehicle Traffic ⁵	APAO Level I “Very Light”	Up to 10,000 ESAL
Drainage Factor ³	1.0		APAO Level II “Light”	Up to 50,000 ESAL

¹ If any of the above parameters are incorrect, please contact us so that we may revise our recommendations, if warranted.
² Value based on guidelines presented in Section 3 of the referenced APAO manual.
³ Assumes good drainage away from pavement, base, and subgrade is achieved by proper crowning of subgrades.
⁴ Values based on experience with similar soils prepared as recommended in this report.
⁵ ESAL = Total 18-Kip equivalent single axle load. Traffic levels taken from Table 3.1 of APAO manual. If an increased traffic load is estimated, please contact us so that we may refine the traffic loading and revise our recommendations, if warranted.

9.8.3 Recommended Minimum Sections

The following table presents the minimum recommended flexible pavement sections for the traffic levels indicated in the preceding table, based on the referenced AASHTO procedures.

Table 6 Recommended Minimum Pavement Sections

Material	Minimum Thickness (inches)	
	APAO Level I (Parking Lot)	APAO Level II (Drive Lanes)
Asphalt Pavement (inches)	3	3½
Crushed Aggregate Base (inches) ¹	5	9
Subgrade Soils	Prepared in accordance with Section 9.8.1 of this report.	

¹ Thickness shown assumes dry weather construction. A granular sub-base section and/or a geotextile separation fabric may be required in wet conditions in order to support construction traffic and protect the subgrade. Refer to Section 9.3 for additional discussion.

9.8.4 Asphalt & Base Course Materials

Asphalt pavement and base course material should conform to the most recent State of Oregon Standard Specifications for Highway Construction. Place aggregate base in one lift, and compact to not less than 95 percent of the material's maximum dry density, as determined in general accordance with ASTM D1557 (Modified Proctor). Asphalt pavement should be compacted to at least 91 percent of the material's theoretical maximum density, as determined in general accordance with ASTM D2041 (Rice Specific Gravity).

9.9 **Additional Considerations**

9.9.1 Drainage

Subsurface drains should be connected to the nearest storm drain, on-site infiltration system (if selected and designed by others), or other suitable discharge point. Paved surfaces and ground near or adjacent to the buildings should be sloped to drain away from the buildings. Surface water from paved surfaces and open spaces should be collected and routed to a suitable discharge point. Surface water should not be directed into foundation drains or onto site slopes.

9.9.1 Expansive Potential

The near-surface, native soils consist of predominately coarse-grained soils, and are not considered to be susceptible to appreciable movements from changes in moisture content. Accordingly, no special considerations are required to mitigate expansive potential of the near surface soils at the site.

10.0 **RECOMMENDED ADDITIONAL SERVICES**

10.1 **Design Review**

Geotechnical design review is of paramount importance, particularly for large and/or complex projects. We recommend the geotechnical design review take place prior to releasing bid packets to contractors.

10.2 **Observation of Construction**

Satisfactory earthwork, foundation, floor slab, and pavement performance depends to a large degree on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during subsurface explorations, and recognition of changed conditions often requires experience. We recommend that qualified personnel visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those observed to date and anticipated in this report. We recommend the geotechnical engineer or their representative attend a pre-construction meeting coordinated by the contractor and/or developer. The project geotechnical engineer or their representative should provide observations and/or testing of at least the following earthwork elements during construction:

- Site Stripping & Grubbing
- Subgrade Preparation for Structural Fills, Shallow Foundations, Retaining Walls, Floor Slabs, and Pavements
- Compaction of Structural Fill and Utility Trench Backfill
- Compaction of Base Rock for Floor Slabs and Pavements

- Compaction of AC for Pavements

It is imperative that the owner and/or contractor request earthwork observations and testing at a frequency sufficient to allow the geotechnical engineer to provide a final letter of compliance for the earthwork activities.

11.0 LIMITATIONS

We have prepared this report for use by the owner/developer and other members of the design and construction team for the proposed development. The opinions and recommendations contained within this report are not intended to be, nor should they be construed as a warranty of subsurface conditions, but are forwarded to assist in the planning and design process.

We have made observations based on our explorations that indicate the soil conditions at only those specific locations and only to the depths penetrated. These observations do not necessarily reflect soil types, strata thickness, or water level variations that may exist between or away from our explorations. If subsurface conditions vary from those encountered in our site explorations, CGT should be alerted to the change in conditions so that we may provide additional geotechnical recommendations, if necessary. Observation by experienced geotechnical personnel should be considered an integral part of the construction process.

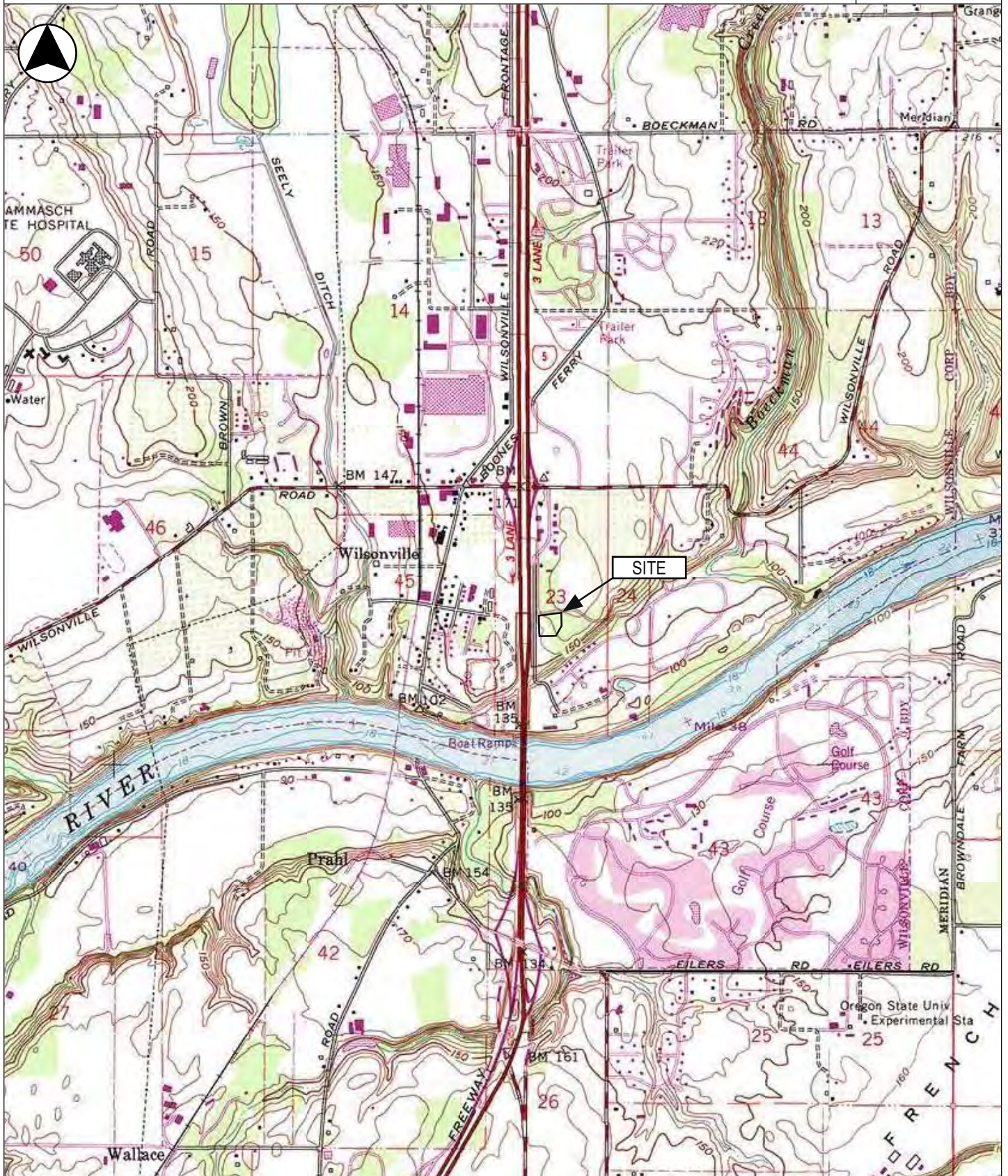
The owner/developer is responsible for ensuring that the project designers and contractors implement our recommendations. When the design has been finalized, prior to releasing bid packets to contractors, we recommend that the design drawings and specifications be reviewed by our firm to see that our recommendations have been interpreted and implemented as intended. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification. Design review and construction phase testing and observation services are beyond the scope of our current assignment, but will be provided for an additional fee.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Geotechnical engineering and the geologic sciences are characterized by a degree of uncertainty. Professional judgments presented in this report are based on our understanding of the proposed construction, familiarity with similar projects in the area, and on general experience. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared; no warranty, expressed or implied, is made. This report is subject to review and should not be relied upon after a period of three years.

QUALITY INN MOTEL EXPANSION - WILSONVILLE, OREGON
Project Number G1604408

FIGURE 1
Site Location



Map created with TOPO!™, © 2006 National Geographic Holdings
 USGS 7.5 Minute Topographic Map Series, Sherwood, Oregon Quadrangle.

Township 3S, Range 1W, Section 23 Willamette Meridian

Latitude: 45.29729° North
 Longitude: 122.76818° West

1 Inch = 2,000 feet



QUALITY INN MOTEL EXPANSION - WILSONVILLE, OREGON
Project Number G1604408

Figure 2

Site Plan



- B-1 Drilled boring location
- TP-1 Test pit location

LEGEND

- HA-1 Hand auger boring location
- HE-1 Hand excavated test pit location

Orientation of site photographs shown on Figure 3

1 Inch = 50 Feet



NOTES: Drawing based on observations made while on site and site plans provided by client. All exploration locations should be considered approximate.



Photograph 1



Photograph 2



Photograph 3



Photograph 4



See Figure 2 for approximate photograph locations and directions. Photographs were taken at the time of our fieldwork.

QUALITY INN MOTEL EXPANSION - WILSONVILLE, OREGON
Project Number G1604408

FIGURE 4
Soil Classification

Classification of Terms and Content		USCS Grain Size				
NAME: Group Name and Symbol Relative Density or Consistency Color Moisture Content Plasticity Other Constituents Other: Grain Shape, Approximate Gradation Organics, Cement, Structure, Odor, etc. Geologic Name or Formation	Fines	<#200 (.075 mm)				
	Sand	Fine	#200 - #40 (.425 mm)			
		Medium	#40 - #10 (2 mm)			
		Coarse	#10 - #4 (4.75)			
	Gravel	Fine	#4 - 0.75 inch			
		Coarse	0.75 inch - 3 inches			
Cobbles	3 to 12 inches; scattered <15% est. numerous >15% est.					
Boulders	> 12 inches					
Relative Density or Consistency						
Granular Material		Fine-Grained (cohesive) Materials				
SPT N-Value	Density	SPT N-Value	Torvane tsf Shear Strength	Pocket Pen tsf Unconfined	Consistency	Manual Penetration Test
		<2	<0.13	<0.25	Very Soft	Thumb penetrates more than 1 inch
0 - 4	Very Loose	2 - 4	0.13 - 0.25	0.25 - 0.50	Soft	Thumb penetrates about 1 inch
4 - 10	Loose	4 - 8	0.25 - 0.50	0.50 - 1.00	Medium Stiff	Thumb penetrates about ¼ inch
10 - 30	Medium Dense	8 - 15	0.50 - 1.00	1.00 - 2.00	Stiff	Thumb penetrates less than ¼ inch
30 - 50	Dense	15 - 30	1.00 - 2.00	2.00 - 4.00	Very Stiff	Readily indented by thumbnail
>50	Very Dense	>30	>2.00	>4.00	Hard	Difficult to indent by thumbnail
Moisture Content				Structure		
Dry: Absence of moisture, dusty, dry to the touch Damp: Some moisture but leaves no moisture on hand Moist: Leaves moisture on hand Wet: Visible free water, likely from below water table				Stratified: Alternating layers of material or color >6 mm thick Laminated: Alternating layers < 6 mm thick Fissured: Breaks along definite fracture planes Slickensided: Striated, polished, or glossy fracture planes Blocky: Cohesive soil that can be broken down into small angular lumps which resist further breakdown Lenses: Has small pockets of different soils, note thickness Homogeneous: Same color and appearance throughout		
	Plasticity	Dry Strength	Dilatancy	Toughness		
ML	Non to Low	Non to Low	Slow to Rapid	Low, can't roll		
CL	Low to Medium	Medium to High	None to Slow	Medium		
MH	Medium to High	Low to Medium	None to Slow	Low to Medium		
CH	Medium to High	High to Very High	None	High		
Visual-Manual Classification						
Major Divisions		Group Symbols		Typical Names		
Coarse Grained Soils: More than 50% retained on No. 200 sieve	Gravels: 50% or more retained on the No. 4 sieve	Clean Gravels	GW	Well-graded gravels and gravel/sand mixtures, little or no fines		
		Gravels with Fines	GP	Poorly-graded gravels and gravel/sand mixtures, little or no fines		
			GM	Silty gravels, gravel/sand/silt mixtures		
		GC	Clayey gravels, gravel/sand/clay mixtures			
	Sands: More than 50% passing the No. 4 sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines		
		Sands with Fines	SP	Poorly-graded sands and gravelly sands, little or no fines		
SM			Silty sands, sand/silt mixtures			
Fine-Grained Soils: 50% or more Passes No. 200 Sieve	Silt and Clays Low Plasticity Fines		SC	Clayey sands, sand/clay mixtures		
			ML	Inorganic silts, rock flour, clayey silts		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays		
	Silt and Clays High Plasticity Fines		OL	Organic silt and organic silty clays of low plasticity		
			MH	Inorganic silts, clayey silts		
			CH	Inorganic clays of high plasticity, fat clays		
Highly Organic Soils		OH	Organic clays of medium to high plasticity			
		PT	Peat, muck, and other highly organic soils			



ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

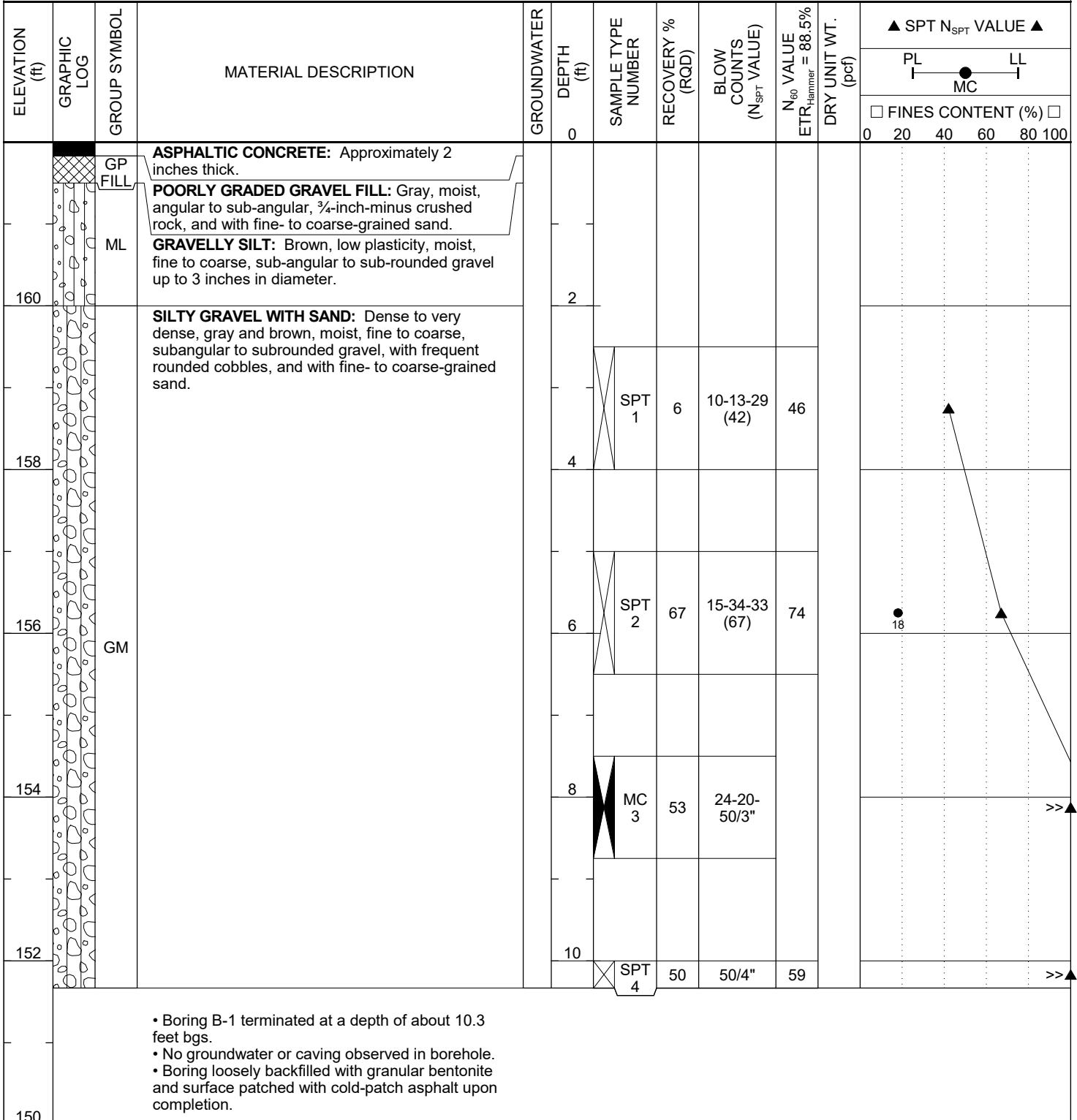


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FIGURE 5

Boring B-1

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 162 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16

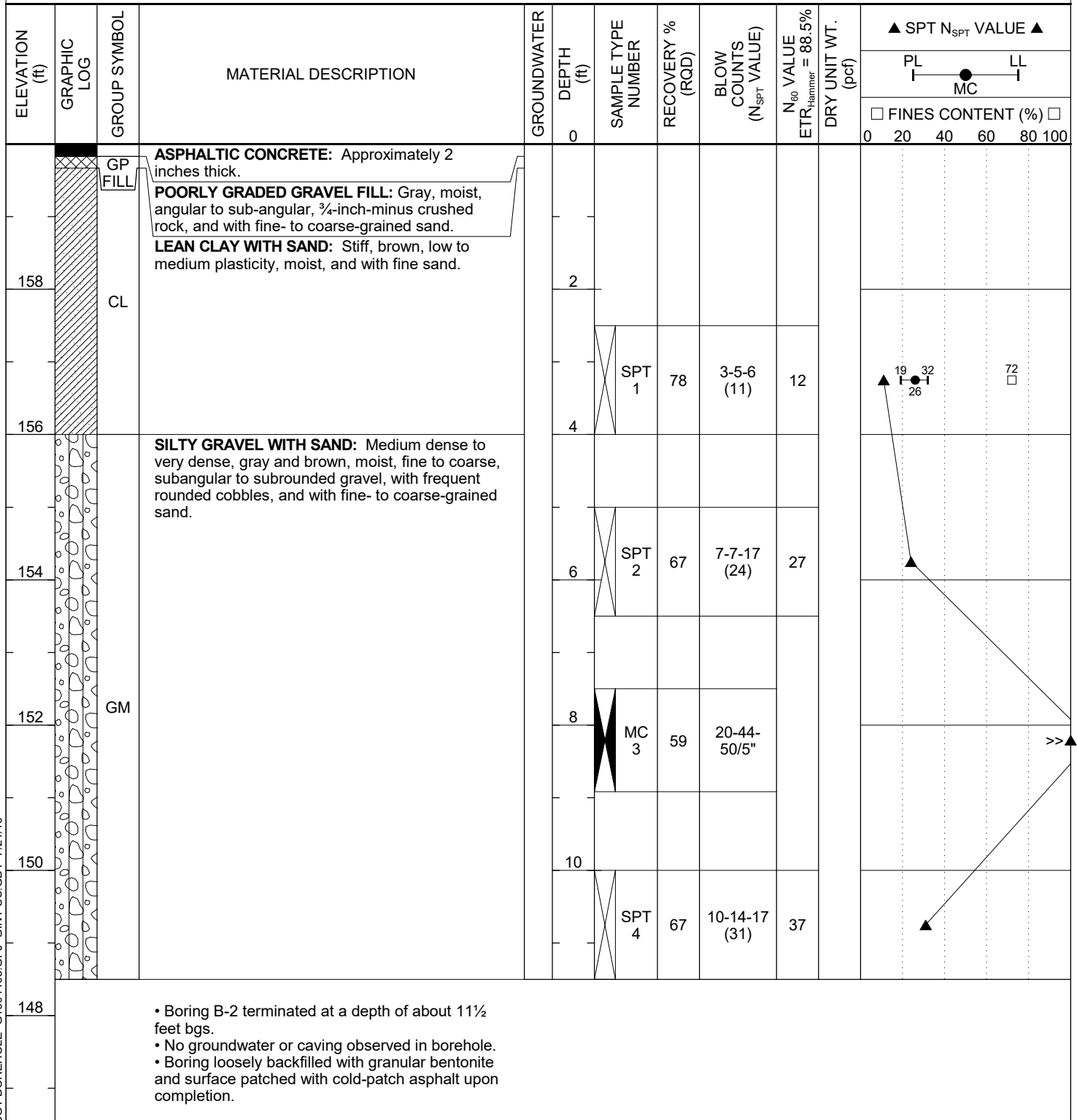


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FIGURE 6

Boring B-2

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 160 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16

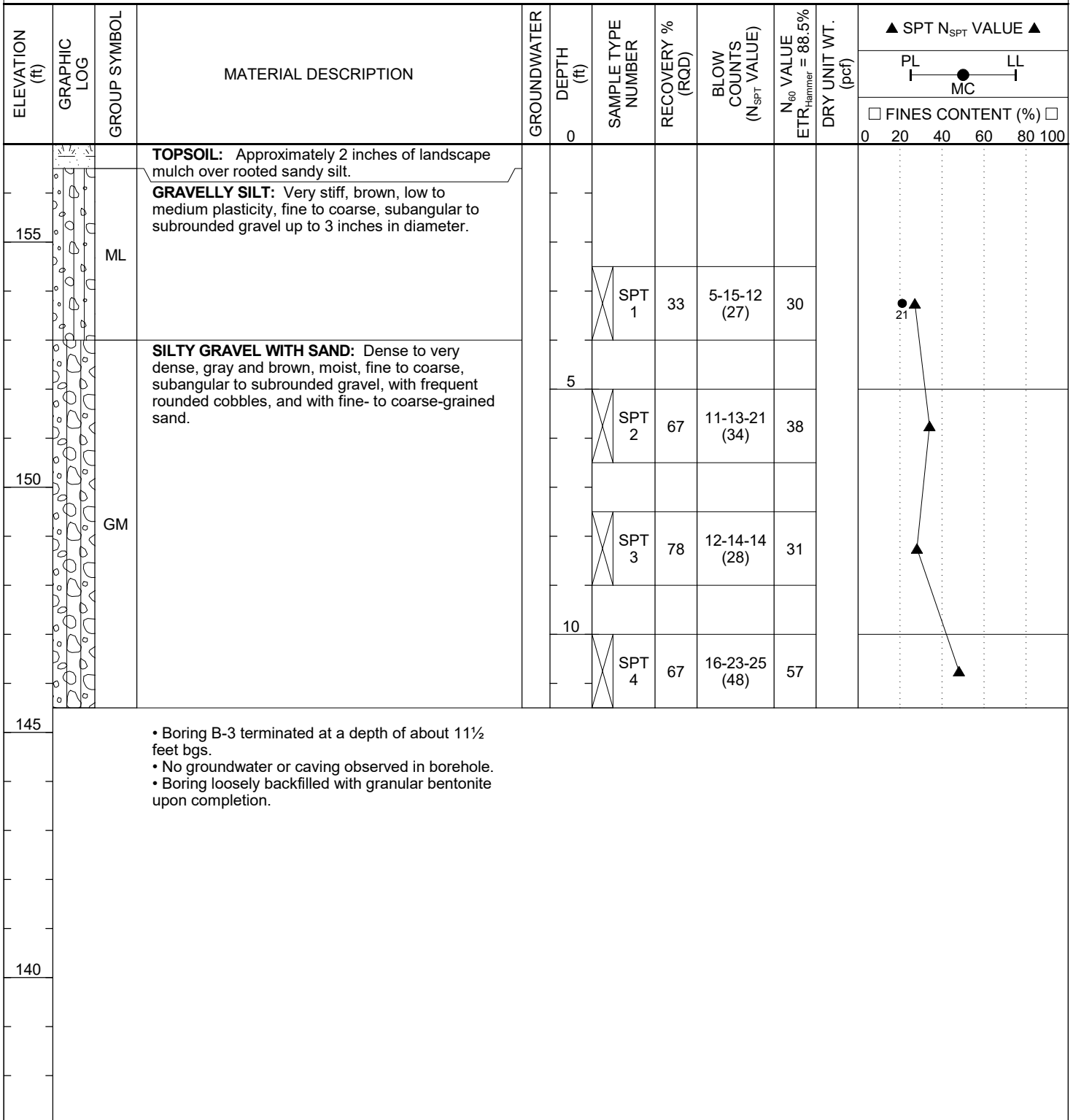


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FIGURE 7

Boring B-3

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 157 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16

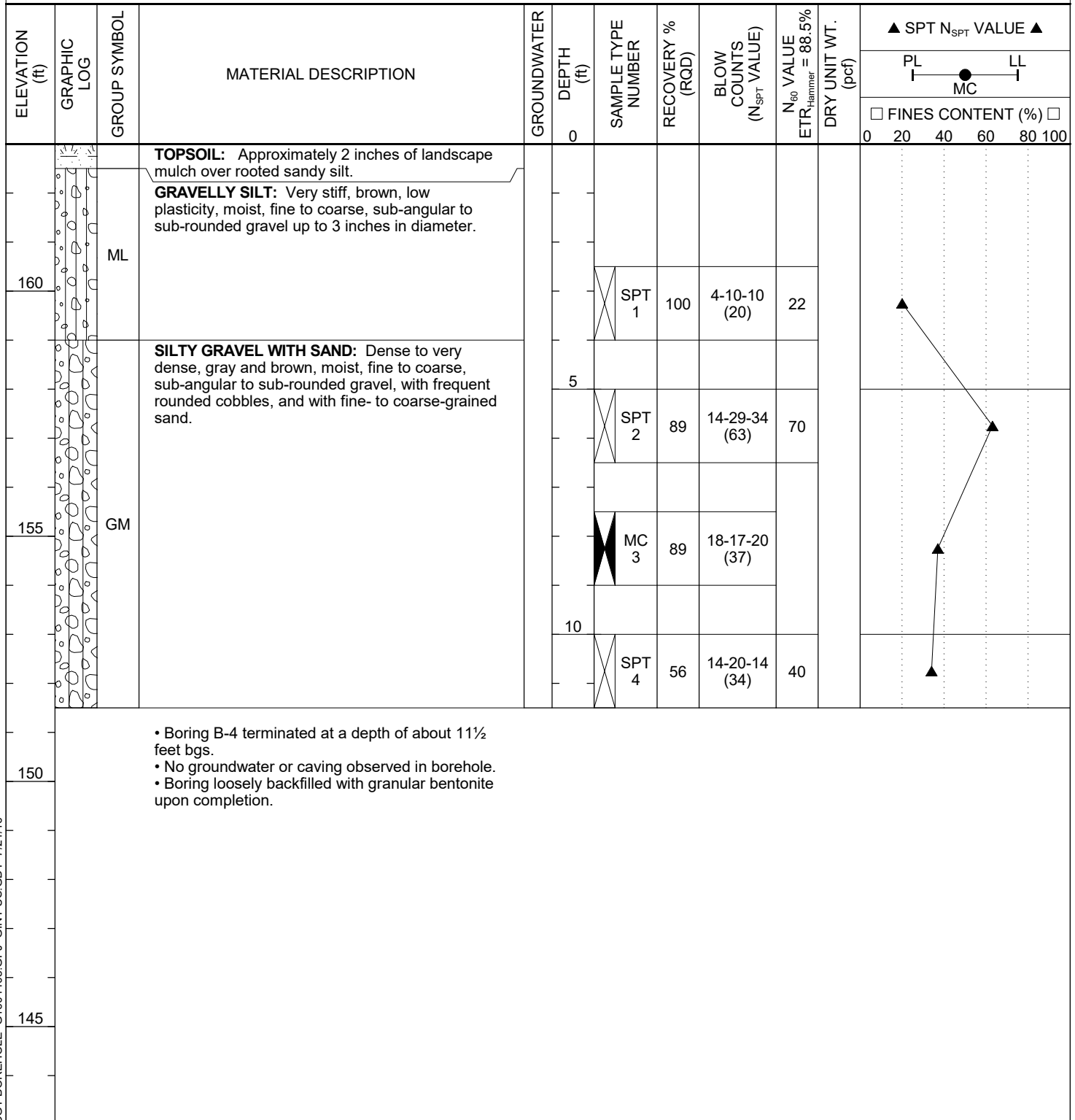


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FIGURE 8

Boring B-4

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 163 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---



CGT BOREHOLE G1604408.GPJ GINT US.GDT 7/21/16



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FIGURE 9

Boring B-5

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 165 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲			
											PL	MC	LL	
					0						□ FINES CONTENT (%) □			
		ML	<p>TOPSOIL: Approximately 2 inches of landscape mulch over rooted sandy silt.</p> <p>GRAVELLY SILT: Brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to 3 inches in diameter.</p>											
160		GM	<p>SILTY GRAVEL WITH SAND: Medium dense to very dense, gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand.</p> <p><i>SPT sample No. 2 collected at 5 feet bgs consisted of predominately loose, caved-in soil from surface portion of the boring. Therefore, SPT blow count value at this depth is considered understated.</i></p>			SPT 1	89	13-12-14 (26)	29					
					5	SPT 2	33	1-1-2 (3)	3					
						MC 3	89	12-22-31 (53)						
155					10	SPT 4	33	6-8-20 (28)	33					

- Boring B-5 terminated at a depth of about 11½ feet bgs.
- No groundwater or caving observed in borehole.
- Boring loosely backfilled with granular bentonite upon completion.

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FIGURE 10

Boring B-6

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 168 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲	
										PL	LL
											MC
											□ FINES CONTENT (%) □
165	GP FILL	GP FILL	ASPHALTIC CONCRETE: Approximately 2 inches thick.								
	CL	CL	POORLY GRADED GRAVEL FILL: Gray, moist, angular to sub-angular, 3/4-inch-minus crushed rock, and with fine- to coarse-grained sand. LEAN CLAY WITH SAND: Stiff, brown, low to medium plasticity, moist, and with fine sand.		SPT 1	33	10-4-6 (10)	11			19 31 22
	GM	GM	SILTY GRAVEL WITH SAND: Medium dense, gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, and with fine- to coarse-grained sand.	5	SPT 2	33	9-5-8 (13)	14			
160	GP-GM	GP-GM	POORLY GRADED GRAVEL WITH SILT & SAND: Dense to very dense, gray and brown, moist, fine to coarse, sub-angular to rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand.	10	SPT 3	78	12-24-50 (74)	82			
					SPT 4	44	13-19-22 (41)	48			
155					SPT 5	39	24-20-25 (45)	53			
				15	SPT 6	20	50/5"	63			>>

- Boring B-6 terminated at a depth of about 15.4 feet bgs.
- No groundwater or caving observed in borehole.
- Boring loosely backfilled with granular bentonite and surface patched with cold-patch asphalt upon completion.

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FIGURE 11

Boring B-7

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 167 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲	
										PL	LL
				0						<input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/> 0 20 40 60 80 100	
165		GP FILL	ASPHALTIC CONCRETE: Approximately 2 inches thick. POORLY GRADED GRAVEL FILL: Gray, moist, angular to sub-angular, 3/4-inch-minus crushed rock, and with fine- to coarse-grained sand. SILTY GRAVEL WITH SAND: Very dense, gray and brown, moist, fine to coarse, sub-angular to rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand. <i>Did not collect SPT sample at 2 1/2 feet bgs due to advancing through a boulder at this depth (per driller's comments).</i>								
160		GM	Some orange mottling observed between approximately 7 1/2 and 9 feet bgs.	5	SPT 2	56	15-23-24 (47)	52			● 17
					MC 3	67	29-35-41 (76)				▲
				10	SPT 4	72	15-24-24 (48)	57			▲
155			<ul style="list-style-type: none"> Boring B-7 terminated at a depth of about 11 1/2 feet bgs. No groundwater or caving observed in borehole. Boring loosely backfilled with granular bentonite and surface patched with cold-patch asphalt upon completion. 								
150											

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FIGURE 12

Boring B-8

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 165 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR Western States Soil Conservation	LOGGED BY Hillary Hagen-Peter REVIEWED BY Jeff Quinn
EQUIPMENT CME850XR Track	SEEPAGE ---
DRILLING METHOD Mud Rotary	GROUNDWATER AT END ---
NOTES 3.875-inch diameter tricone bit & MWJ drill rods	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N _{SPT} VALUE)	N ₆₀ VALUE ETR _{Hammer} = 88.5%	DRY UNIT WT. (pcf)	▲ SPT N _{SPT} VALUE ▲	
										PL	LL
											MC
											0 20 40 60 80 100
	GP FILL		ASPHALTIC CONCRETE: Approximately 2 inches thick.								
	ML		POORLY GRADED GRAVEL FILL: Gray, moist, angular to sub-angular, ¾-inch-minus crushed rock, and with fine- to coarse-grained sand. GRAVELLY SILT: Stiff, brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to approximately 3 inches in diameter.		SPT 1	33	5-3-11 (14)	15			
160			SILTY GRAVEL WITH SAND: Very dense, gray and brown, moist, fine to coarse, sub-angular to rounded gravel, with frequent rounded cobbles, and with fine- to coarse-grained sand.	5	SPT 2	0	50/3"	55			>>
	GM				MC 3	54	24-41-50/1"				>>
155				10	SPT 4	40	11-50/4"	59			>>

- Boring B-8 terminated at a depth of about 10.8 feet bgs.
- No groundwater or caving observed in borehole.
- Boring loosely backfilled with granular bentonite and surface patched with cold-patch asphalt upon completion.

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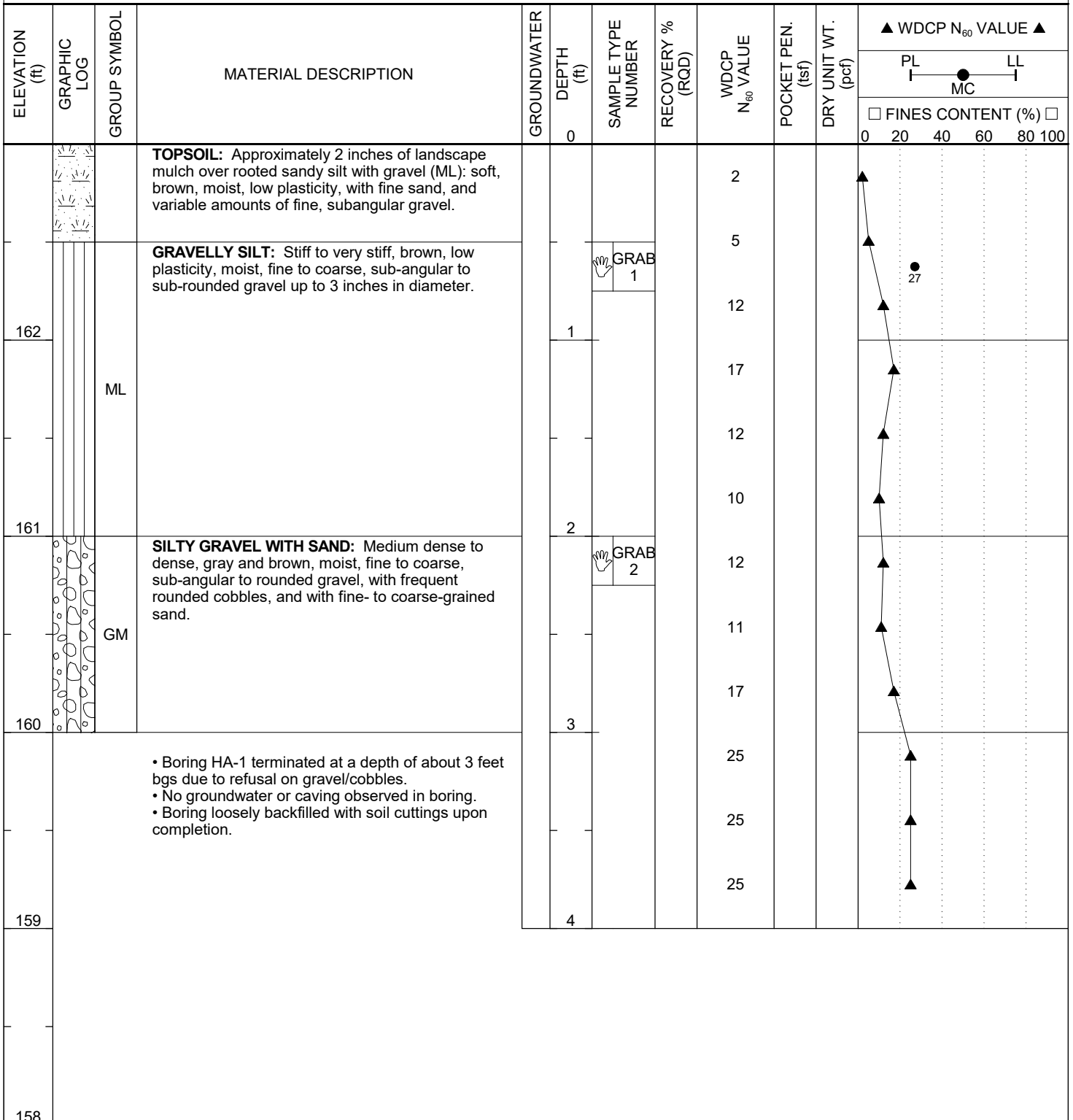


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FIGURE 13

Boring HA-1

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 163 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR CGT	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT 3 inch Hand Auger	SEEPAGE ---
DRILLING METHOD Hand Auger	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER DRILLING ---



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FIGURE 14

Boring HA-2

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/14/16 GROUND ELEVATION 158 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
DRILLING CONTRACTOR CGT	LOGGED BY Bento Nimo REVIEWED BY Jeff Quinn
EQUIPMENT 3 inch Hand Auger	SEEPAGE ---
DRILLING METHOD Hand Auger	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲	
										PL	LL
				0							MC
											0 20 40 60 80 100
			TOPSOIL: Approximately 2 inches of landscape mulch over rooted sandy silt with gravel (ML): stiff, brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.				11				
157		ML	GRAVELLY SILT: Very stiff, brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to 3 inches in diameter.		GRAB 1		20				
				1			25				
			<ul style="list-style-type: none"> Boring HA-2 terminated at a depth of about 1 foot bgs due to refusal on gravel/cobbles. No groundwater or caving observed in boring. Boring loosely backfilled with soil cuttings upon completion. 				25				
156				2			25				
							25				
							25				
155							25				
							25				
154							25				
							25				
153				3			25				

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FIGURE 15

Test Pit TP-1

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/15/16 GROUND ELEVATION 162 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
EXCAVATION CONTRACTOR CGT	LOGGED BY Kyle Smetana REVIEWED BY Jeff Quinn
EQUIPMENT Takeuchi TB-230	SEEPAGE ---
EXCAVATION METHOD Test Pit	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER EXCAVATION ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲	
											PL	LL
					0							MC
161			TOPSOIL: Grass at ground surface over rooted sandy silt with gravel (ML): brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.		1							

- TP-1 terminated an approximate depth of 1 foot bgs due to encountering un-marked irrigation lines.
- Test pit loosely backfilled with excavated materials upon completion.

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158

157

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FIGURE 16

Test Pit TP-2

CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/15/16 GROUND ELEVATION 148 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
EXCAVATION CONTRACTOR CGT	LOGGED BY Kyle Smetana REVIEWED BY Jeff Quinn
EQUIPMENT Takeuchi TB-230	SEEPAGE ---
EXCAVATION METHOD Test Pit & Infiltration Test	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER EXCAVATION ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲		
										PL	LL	
				0							MC	
											□ FINES CONTENT (%) □	
											0 20 40 60 80 100	
147			TOPSOIL: Grass at ground surface over rooted sandy silt with gravel (ML): brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.									
146		GM	SILTY GRAVEL WITH SAND: Gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, with frequent rounded cobbles, with fine- to coarse-grained sand, and occasional rounded boulders up to approximately 2 feet in diameter observed.	1								
145				2								
144				3								
143		SP-SM	POORLY GRADED SAND WITH SILT & GRAVEL: Gray and brown, moist, fine- to medium-grained sand, with coarse, sub-angular to sub-rounded gravel, and occasional rounded cobbles (up to approximately 6 inches in diameter).	4								
143				5	GRAB 1							15 ● 14

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- TP-2 terminated at a depth of approximately 5 feet bgs.
- Infiltration test IT-1 performed at a depth of approximately 5 feet bgs (see Appendix A of report text for results).
- Test pit loosely backfilled with excavated materials upon completion.



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FIGURE 17

Test Pit TP-3

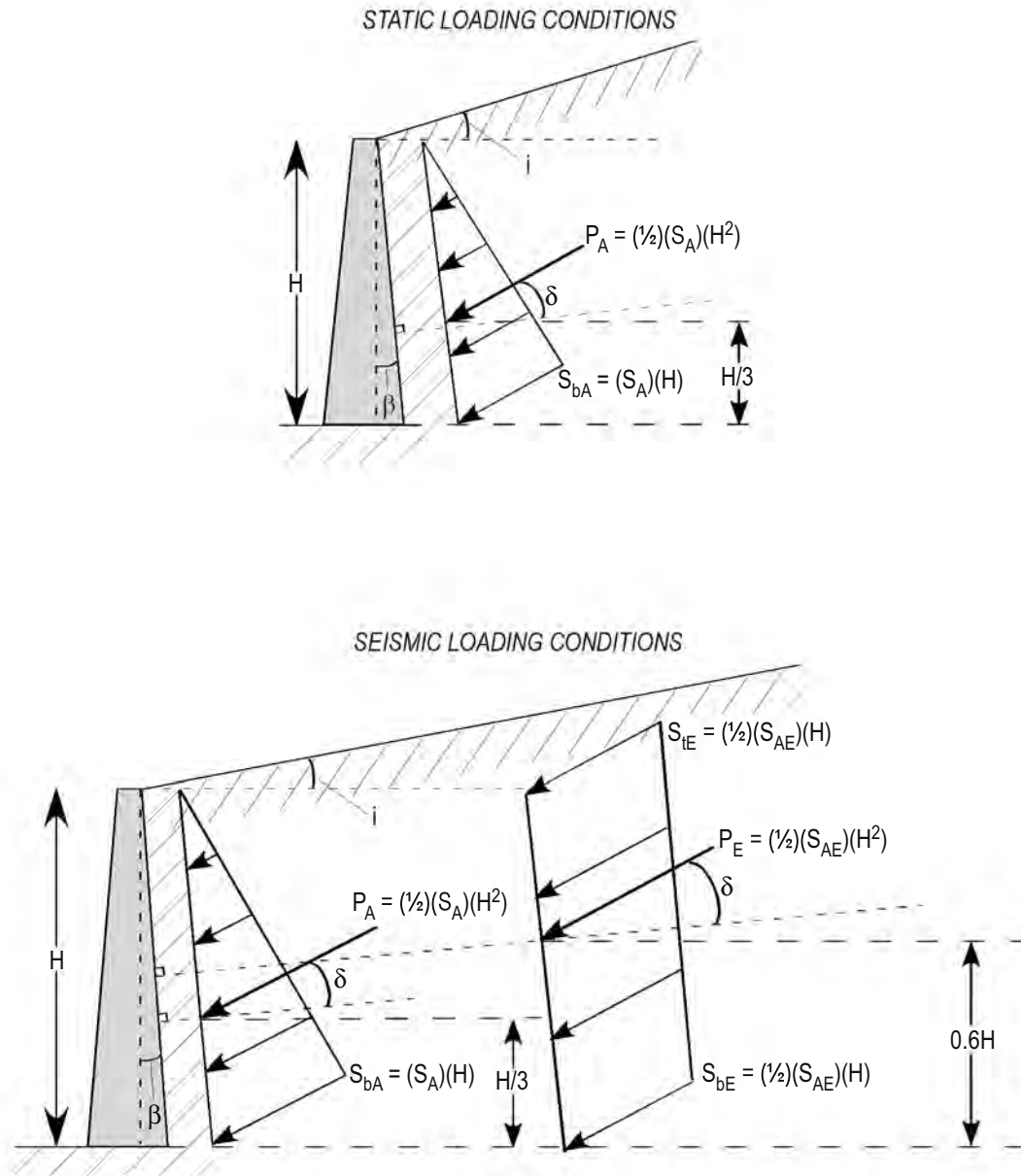
CLIENT PDG Planning Design Group - Dave Kimmel	PROJECT NAME Quality Inn Motel Expansion
PROJECT NUMBER G1604408	PROJECT LOCATION 30800 SW Parkway Ave, Wilsonville, OR
DATE STARTED 6/15/16 GROUND ELEVATION 162 ft	ELEVATION DATUM Metro's Regional Land Information System (RLIS)
EXCAVATION CONTRACTOR CGT	LOGGED BY Kyle Smetana REVIEWED BY Jeff Quinn
EQUIPMENT Takeuchi TB-230	SEEPAGE ---
EXCAVATION METHOD Test Pit & Infiltration Test	GROUNDWATER AT END ---
NOTES	GROUNDWATER AFTER EXCAVATION ---

ELEVATION (ft)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	GROUNDWATER DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	WDCP N ₆₀ VALUE	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ WDCP N ₆₀ VALUE ▲	
										PL	LL
				0							MC
											0 20 40 60 80 100
161			TOPSOIL: Grass at ground surface over rooted sandy silt with gravel (ML): brown, moist, low plasticity, with fine sand, and variable amounts of fine, subangular gravel.								
160		ML	GRAVELLY SILT: Brown, low plasticity, moist, fine to coarse, sub-angular to sub-rounded gravel up to 3 inches in diameter.	1							
159			SILTY GRAVEL WITH SAND: Gray and brown, moist, fine to coarse, sub-angular to sub-rounded gravel, with frequent rounded cobbles, with fine- to coarse-grained sand, and occasional rounded boulders up to 18 inches in diameter.	2							
158				3							
157		GM		4							
156				5	GRAB 1						

- TP-3 terminated at a depth of approximately 5 feet bgs.
- Infiltration test IT-2 performed at a depth of approximately 5 feet bgs (see report text for results).
- Test pit loosely backfilled with excavated materials upon completion.

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ACTIVE LATERAL PRESSURE DISTRIBUTION



LEGEND

P_A = Static active thrust force acting at a triangular distribution on wall (lb/ft³)
 P_E = Dynamic component of active thrust force acting at a uniform distribution on wall (lb/ft)
 i = Slope of backfill (degrees)**
 S_A = Active (static) component of equivalent fluid pressure (lb/ft³)*
 S_{tE} = Active earth pressure (dynamic) at the top of the wall (lb/ft³)
 S_{bA} = Active earth pressure (static) at the bottom of the wall (lb/ft³)

ϕ = Internal angle of friction for backfill (degrees)**
 δ = Angle from normal of back of wall (degrees). Based on friction developing between wall and backfill**
 β = Slope of back of wall (degrees)**
 S_{AE} = Dynamic component of equivalent fluid pressure (lb/ft³)*
 S_{bE} = Active earth pressure (dynamic) at bottom of the wall (lb/ft³)*

*Refer to report text for calculated values **Refer to report text for modeled/assumed values

Notes

1. Uniform pressure distribution of seismic loading is based on empirical evaluations [Sherif et al, 1982 and Whitman, 1990].
2. Placement of seismic resultant force at 0.6H is based on wall behavior and model test results [Whitman, 1990].



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Appendix A: Infiltration Testing

**Quality Inn Motel Expansion
30800 SW Parkway Avenue
Wilsonville, Oregon**

CGT Project No. G1604408

July 21, 2016

Prepared For:

Mr. Dave Kimmel
PDG Planning Design Group
12469 SE 41st Court
Portland, Oregon 97222

Prepared By:

Carlson Geotechnical

A.1.0 INTRODUCTION

CGT performed infiltration testing as part of our geotechnical investigation of the site on June 15, 2016. The tests were performed in the general locations and at depths described in our proposal GP7125, dated May 24, 2016. The tests were performed within test pits TP-2 and TP-3, the approximate locations of which are shown on the Site Plan attached to the report as Figure 2.

A.2.0 TEST PROCEDURE

The infiltration tests were prepared in general accordance with the “Encased Falling Head Test Procedure” described in Section B.2.04 (Appendix B) of the 2014 City of Wilsonville Public Works Standards. A 6-inch diameter PVC pipe was inserted into the prepared test pit and hydraulically-pushed (with the excavator described in the main text) approximately 6 inches into the exposed soil horizon at the infiltration test depth. Granular bentonite was used to aid in sealing the interface between the test pipe and the soils at the base of the test pits.

Based on the coarse-grained nature of the soils, we did not anticipate that a 4-hour soaking period would be necessary. Prior to conducting the test, we added approximately 12 inches of water to the infiltration test pipe and noted the water completely dissipated in less than 10 minutes. This process was repeated a second time with similar results prior to conducting the infiltration tests. Per the referenced test procedure, if after filling the casing twice with 12 inches of water, the water seeps away completely in less than 10 minutes, the test can proceed immediately.

Each infiltration test consisted of five, 6-inch drawdown trials. For each trial, the infiltration test pipe was filled with 6 inches of water, and the time required for the water to completely infiltrate was recorded. The results are presented below.

A.3.0 TEST RESULTS

The following tables present the results of the infiltration tests performed at the site.

Location IT-1 (in TP-2)		Depth 5 feet bgs	Soil Type Poorly Graded Sand with Silt & Gravel (SP-SM)
Trial	Drop in Water Level (inches)	Time Interval (seconds)	Raw Infiltration Rate (inches per hour)
1	6	57	379
2	6	106	204
3	6	111	195
4	6	126	171
5	6	137	158

Location IT-2 (in TP-3)		Depth 5 feet bgs	Soil Type Silty Gravel with Sand (GM)
Trial	Drop in Water Level (inches)	Time Interval (seconds)	Raw Infiltration Rate (inches per hour)
1	6	48	450
2	6	63	343
3	6	66	327
4	6	72	300
5	6	80	270

A.4.0 DISCUSSION

Per the referenced test procedure, the result of the last water level drop should be used to calculate the tested infiltration rate. Accordingly, the tested, raw infiltration rates ranged from 158 inches per hour in IT-1, to 270 inches per hour in IT-2. Note that these infiltration rates do not include any safety or correction factors. We recommend the stormwater infiltration system designer consult the appropriate design manual in order to assign appropriate safety/correction factors to calculate the design infiltration rate for the proposed infiltration system(s). Once the design is completed, we recommend the infiltration system design (provided by others) and location be reviewed by the geotechnical engineer. If the location and/or depth of the system(s) change from what was indicated at the time of our fieldwork, additional testing may be recommended.



Wilsonville Hilton *Transportation Impact Analysis*



Prepared by



July 2017



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#310
Salem, OR 97301
503.391.8773
dksassociates.com

July 18, 2017

Steve Adams
City of Wilsonville
29799 Town Center Loop East
Wilsonville, OR 97070

Subject: Wilsonville Hilton Transportation Impact Study

Dear Steve,

DKS Associates is pleased to submit this transportation impact study for the proposed Hilton Hampton Inns and Suites to replace the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville. Please feel free to call if you have any questions or comments regarding this study.

Sincerely,
DKS Associates

A handwritten signature in blue ink, appearing to read "Scott M.", written over a light blue horizontal line.

Scott Mansur, P.E., PTOE
Transportation Engineer



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1.0 INTRODUCTION AND SUMMARY

This study evaluates the transportation impacts associated with the proposed Hilton Hampton Inns and Suites that is replacing the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon. The proposed four story building will be 77,865 square feet with 118 guest rooms, which are 50 more rooms than the existing Quality Inn Hotel.

The purpose of this transportation impact analysis is to identify recommended mitigation to offset the transportation impacts of the proposed Hilton Hampton Inns and Suites.

The impact analysis is focused on three study intersections in the vicinity of the proposed hotel, which were chosen based on coordination with city staff and are shown in Figure 1.

- Wilsonville Road/Town Center Loop West
- Memorial Drive/Project Access
- SW Parkway Avenue/Memorial Drive

This chapter summarizes the proposed development and the steps taken to analyze the associated impacts on the transportation network. It highlights important elements of the remaining chapters, including a description of the project and the findings of the transportation analysis.

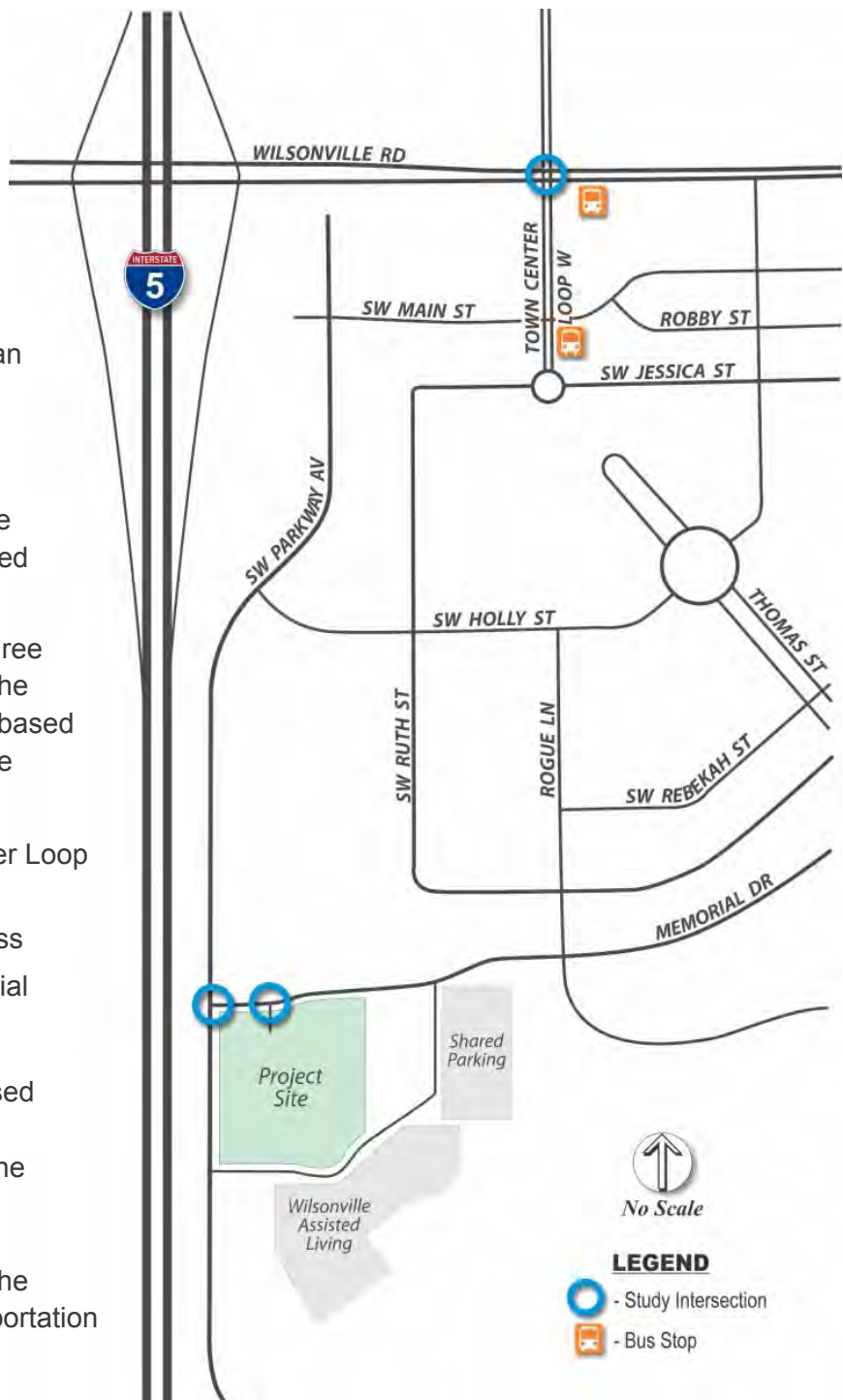


Figure 1: Study Area

Table 1 lists important characteristics of the study area and proposed project.

Table 1: Key Study Area and Proposed Development Characteristics

Characteristics	Information
<u>Study Area</u>	
Number of Study Intersections	3
Analysis Period	Weekday p.m. peak hour (Peak hour between 4-6 p.m.)
<u>Project Site</u>	
Existing Land Use	Quality Inn Hotel (68 guest rooms)
Proposed Development	Hilton Hampton Inns and Suites (118 guest rooms)
Project Access	Primary access from existing driveway off Memorial Drive. Secondary access from existing private road between site and Marquis Wilsonville Assisted Living.
Project Trip Generation	408 net new average daily trips (proposed minus existing) including 30 (15 in, 15 out) in the p.m. peak hour.
I-5/Wilsonville Road Interchange Trips	24 net new p.m. peak hour trips are expected through the I-5/Wilsonville Road interchange area

EXISTING INTERSECTION OPERATIONS

Existing traffic operations at the study intersection were determined for the p.m. peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersections and 2010 Highway Capacity Manual for unsignalized intersections.¹ The results were then compared with the City of Wilsonville’s minimum acceptable level of service (LOS) operating standard. Table 2 lists the estimated delay, LOS, and v/c ratio of each study intersection. The existing study intersections currently meet operating standards.

Table 2: Existing Study Intersection Operations

Intersection (Traffic Control)	Operating Standard	Existing		
		Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.5	D	0.73
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.1	A/A	0.07
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.0	A/A	0.02

Signalized Intersections:

- Delay = Average Intersection Delay (sec.)
- LOS = Level of Service of Intersection
- v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

- Delay = Critical Movement approach Delay (sec.)
- LOS = Level of Service of Major/Minor Street
- v/c = Volume-to-Capacity Ratio of Intersection

¹ Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000 and 2010.

PROPOSED PROJECT SITE

The proposed Hilton Hampton Inns and Suites replacing the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon is expected to be four stories high with 118 guest rooms, 50 more than the existing Quality Inn Hotel. The first floor is expected to be 21,120 square feet and the second to fourth floors are each expected to be 18,915 square feet for a total of 77,865 square feet. A detailed site plan can be found in the appendix.

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles a development adds to site driveways and the adjacent roadway network during a specified period (i.e., such as the p.m. peak hour). Trip generation estimates are performed using trip rates surveyed at similar land uses, as provided by the Institute of Transportation Engineers (ITE).²

The project site is estimated to generate 408 net new average daily trips (proposed minus existing) including 30 (15 in, 15 out) in the p.m. peak hour. These trips were distributed and added to the roadway network for the future operations analysis to determine how the net new trips (proposed minus existing) would impact the study intersections. Table 3 lists the p.m. peak hour vehicle trip generation estimates for the proposed Hilton Hampton Inns and Suites.

Table 3: Trip Generation Summary for Proposed Hilton Hampton Inns and Suites

Land Use (ITE Code)	Trip Generation Rate ¹	Units	P.M. Peak Hour Trips			Daily Trips
			In	Out	Total	
Existing Quality Inn Hotel (310)	0.60 trips per unit	68	21	20	41	556
Proposed Hilton Inn & Suites (310)		118	36	35	71	964
Net New Trips (Proposed-Existing)		50	15	15	30	408

¹ The project trip generation estimates were based on ITE p.m. peak hour average trip rate.

PROJECT TRAFFIC IMPACT

The impact analysis included the p.m. peak hour project trips through the study intersections and the I-5/Wilsonville Road interchange area and the future traffic operating conditions at the study intersections. The analysis included scenarios that account for Stage II approved developments in the area, including those under construction or built but not yet occupied. The scenarios analyzed include:

- Existing + Project
- Existing + Stage II (includes traffic from other developments that have Stage II approval or are under construction)
- Existing + Project + Stage II

² *Trip Generation, 9th Edition*, Institute of Transportation Engineers, 2012.

The study intersection operating conditions for the three future scenarios are listed in Table 4. All study intersections meet the City’s operating standards for all future project and Stage II scenarios. Therefore, the development does not require off-site mitigations to the study area transportation network.

Table 4: Future Project and Stage II Intersection Operations Comparison

Intersection (Traffic Control)	Operating Standard	Existing + Project			Existing + Stage II			Existing + Stage II + Project		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.9	D	0.73	43.5	D	0.76	43.7	D	0.77
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.2	A/A	0.09	9.1	A/A	0.07	9.2	A/A	0.09
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.2	A/A	0.04	9.0	A/A	0.02	9.2	A/A	0.04

Signalized Intersections:

Delay = Average Intersection Delay (sec.)
 LOS = Level of Service of Intersection
 v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

Delay = Critical Movement approach Delay (sec.)
 LOS = Level of Service of Major/Minor Street
 v/c = Volume-to-Capacity Ratio of Intersection

PROJECT IMPACT SUMMARY

The proposed Hilton Hampton Inns and Suites to occupy the existing Quality Inn Hotel at 30800 SW Parkway Avenue is anticipated to result in the following impacts:

Trip Generation

- The project site is estimated to generate 408 net new average daily trips (proposed hotel minus existing hotel) including 30 (15 in, 15 out) in the p.m. peak hour.
- Of the total 30 net new project trips, 24 new p.m. peak hour trips are estimated to pass through the I-5/Wilsonville Road interchange area.

Study Intersection Operations

- The Wilsonville Road/Town Center Loop West, SW Parkway Avenue/Memorial Drive, and Memorial Drive/Site Driveway are anticipated to meet the City’s operating standard with an LOS of D or better for all existing and future scenarios.

Site Circulation and Safety

- Prior to occupancy, sight distance at the existing hotel access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Vehicle and Bicycle Parking

- The provided site plan shows a total of 143 parking spaces, including 37 additional shared off-site parking spaces, which meets the City of Wilsonville's parking requirements and the estimated demand.
- The City of Wilsonville requires 24 bicycle spaces. The site plan shows a total of 12 bicycle spaces located near the front entrance. It is recommended that 12 additional spaces be provided near the front entrance or a variance to code will be required.

2.0 EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, future planned projects, and existing traffic volumes and operations. Supporting details are provided in the appendix.

STUDY AREA ROADWAY NETWORK

The proposed Hilton Hampton Inns and Suites will replace the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon. Key roadways in the study area are summarized in Table 5 along with their existing roadway characteristics. The functional classifications for City of Wilsonville streets are provided in the *City of Wilsonville Transportation System Plan (TSP)*.³

Table 5: Study Area Roadway Characteristics

Roadway	Classification	Number of Lanes	Posted Speed	Sidewalks	Bike Lanes	On-Street Parking
Wilsonville Road	Major Arterial	4	25	Yes	Yes	No
SW Parkway Avenue	Local Street	2	30 ¹	Partial ²	No	No
Memorial Drive	Collector	2	25	Yes	Yes	No

¹ Speed limit changes to 25 mph south of Memorial Drive

² Sidewalks only on east side of SW Parkway Avenue

PEDESTRIAN AND BICYCLE FACILITIES

Bicycle and pedestrian facilities along both sides of Wilsonville Road and Memorial Drive include six foot sidewalks and six foot bicycle lanes. There are only sidewalks along the east side of SW Parkway Avenue. Along the frontage of the project site, the existing sidewalks are in good condition as shown in the photos below.



Existing Frontage Sidewalks along Memorial Drive (left) and SW Parkway Ave (right)

³ City of Wilsonville Transportation Systems Plan, 2013.

SW Parkway Avenue does not have bicycle lanes; however, it is designated as a Local Street Bikeway as part of the Wilsonville TSP. Local Street Bikeways are designated as an important bicycle connections where bicyclists share the travel lane with motor vehicles.

FUTURE PLANNED PROJECTS

The City of Wilsonville Transportation System Plan includes future planned roadway and intersection projects. The Wilsonville Road/Town Center Loop West intersection is identified to exceed applicable operating standards for future 2035 traffic volumes and is identified as having freight rate deficiencies from small turning radii. There is also an identified lack of trails between Boones Ferry Park and Memorial Park. The following projects are identified in the TSP to alleviate these concerns:

- **SI-04 Wilsonville Road/Town Center Loop West Intersection Improvements:** This project will widen the north leg of the intersection and install a second exclusive southbound right-turn lane (dual lanes) at the intersection. Since this project is not funded, it was not assumed in the transportation analysis.
- **Future Bike/Pedestrian Bridge crossing I-5 at Memorial Drive:** This project will consider installing a bicycle and pedestrian bridge with a shared use path from 5th Street to Memorial Drive across I-5.
- **CIP 9146 –** reconstruction of the bike-ped pathway under I-5 linking Memorial Park and adjacent neighborhoods to Boones Ferry Park, Old Town and the planned extension of the Tonquin Trail from Boones Ferry Road to the Morey's Landing neighborhood.

EXISTING TRAFFIC VOLUMES AND OPERATIONS

Existing traffic volume data, shown in Figure 2, was collected at the study intersections.⁴ The traffic counts that were collected included existing traffic from the 68 room Quality Inn Hotel. Existing p.m. peak hour traffic operations were analyzed at the following study intersection based on coordination with city staff:⁵

- Wilsonville Road/Town Center Loop West
- Memorial Drive/Project Access
- SW Parkway Avenue/Memorial Drive

⁴ Traffic Data was collected by Key Data Network on Tuesday, June 6, 2017 and Wednesday June 7, 2017.

⁵ Email with Steve Adams on May 12, 2017.

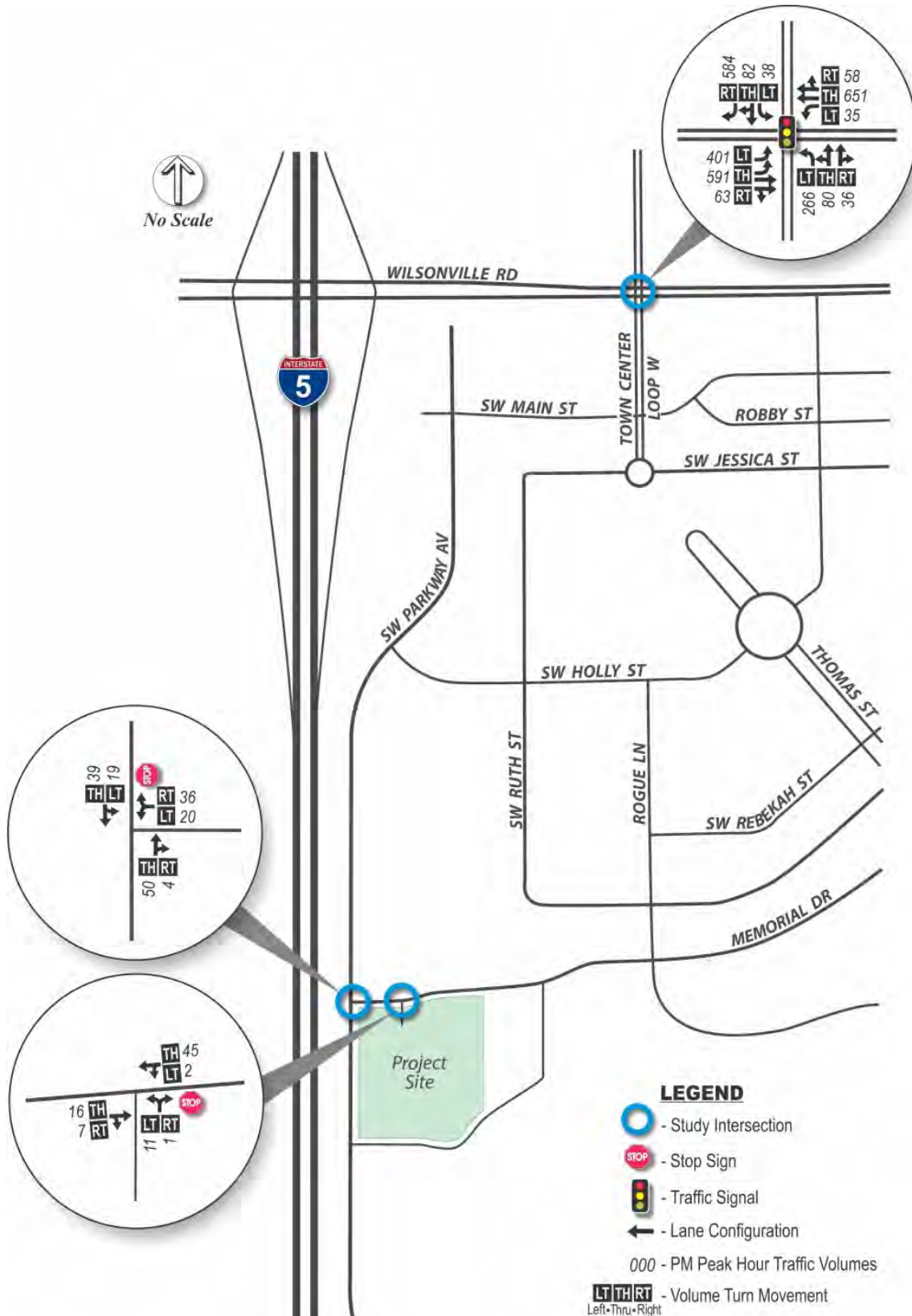


Figure 2: Existing PM Peak Hour Traffic Volumes

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations.

- Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection.⁶ LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.
- Volume-to-capacity (v/c) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

The City of Wilsonville requires the study intersections of public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for peak periods.⁷ While private driveway approaches are not required by City code to meet the City’s LOS standard, safety and operations are still considered.

Existing Operating Conditions

Existing traffic operations at the study intersections were determined for the p.m. peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersections and 2010 Highway Capacity Manual for unsignalized intersections.⁸

Table 6: Existing Study Intersection Operations

Intersection (Traffic Control)	Operating Standard	Existing		
		Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.5	D	0.73
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.1	A/A	0.07
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.0	A/A	0.02

Signalized Intersections:

Delay = Average Intersection Delay (sec.)
 LOS = Level of Service of Intersection
 v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

Delay = Critical Movement approach Delay (sec.)
 LOS = Level of Service of Major/Minor Street
 v/c = Volume-to-Capacity Ratio of Intersection

⁶ A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

⁷ *City of Wilsonville Code*, City of Wilsonville Section 4.140, p.166.

⁸ *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000 and 2010.

The results were then compared with the City of Wilsonville’s minimum acceptable level of service (LOS) operating standard of LOS D. As shown in Table 6, all study intersections currently meet the City of Wilsonville’s minimum acceptable LOS D operating standard.

COLLISION ANALYSIS

Five years of collision records (2011-2015) for the study area were obtained from ODOT’s online database. The data identified 25 collisions at the Wilsonville Road/Town Center Loop West study intersection during the five-year period. There were zero fatal crashes and ten injury crashes (one serious injury) at the study intersection between 2011 and 2015. The majority of the collisions were turning (ten), or rear-end (nine) collisions that occurred during daylight hours. Four crashes occurred at night time, three of which were reported as having no lighting. There were no reported collisions that involved a bicycle or pedestrian.

The crash rate for the Wilsonville Road/Town Center Loop West intersection is below the ODOT critical crash rate for similar intersections (0.86 for urban four-leg signalized intersections) and does not warrant further investigation of safety performance. There were no reported collisions at the SW Parkway Avenue/Memorial Drive and Memorial Drive/Project Access intersections.

Table 7: Collision History at Study Intersections

Intersection	Collisions (by Severity)				Collision Rate ²
	Fatal	Injury	PDO ¹	Total	
Wilsonville Road/Town Center Loop West	0	11	14	25	0.47

¹ PDO = Property damage only.

² Collision rate for intersections = average annual collisions per million entering vehicles (MEV); MEV estimates based on p.m. peak-hour traffic count and applicable factors.

PUBLIC TRANSIT SERVICE

South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and the surrounding area.⁹ Route 4 and 2x travel on Wilsonville Road with one stop located on the southeast corner of Main Street/Town Center Loop West (Route 4) and one stop on the southeast corner of Wilsonville Road/Town Center Loop West (Route 2x).

Route 4 primarily travels along Wilsonville Road connecting key places including Graham Oaks Nature Park, Inza Wood Middle School, Boulder Creek, and Town Center Park. Route 2x primarily travels along Parkway Avenue and Canyon Creek Road connecting key places including City Hall, Xerox, Argyle Square, and the Tualatin Park and Ride.

⁹ South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and make connections to TriMet in Portland, Cherriots in Salem, and Canby Area Transit.

3.0 PROJECT IMPACTS

This chapter reviews the impacts that the net new trips from the proposed Hilton Hampton Inns and Suites may have on the previously identified study intersections. The analysis includes the trip generation, trip distribution, future year traffic volumes and operating conditions, and an evaluation of the project site plan.

PROJECT SITE

The proposed Hilton Hampton Inns and Suites replacing the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon, is expected to be four stories high with 118 guest rooms, 50 more rooms than the existing Quality Inn Hotel. The first floor is expected to be 21,120 square feet and the second to fourth floors are expected to be 18,915 square feet for a total of 77,865 square feet. A detailed site plan can be found in the appendix.

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles a development adds to site driveways and the adjacent roadway network during a specified period (i.e., such as the p.m. peak hour). Trip generation estimates are performed using trip rates surveyed at similar land uses, as provided by the Institute of Transportation Engineers (ITE).¹⁰

The project site is estimated to generate 408 net new (proposed minus existing) average daily trips and 30 (15 in, 15 out) p.m. peak hour trips. These trips were distributed and added to the roadway network for the future operations analysis to determine whether the side would impact the study intersections. As previously noted, the existing traffic counts included Table 8 lists the p.m. peak hour vehicle trip generation estimates for the proposed Hilton Hampton Inns and Suites.

Table 8: Trip Generation Summary for Proposed Hilton Inn and Suites

Land Use (ITE Code)	Trip Generation Rate ¹	Units	P.M. Peak Hour Trips			Daily Trips
			In	Out	Total	
Existing Quality Inn Hotel (310)	0.60 trips per unit	68	21	20	41	556
Proposed Hilton Inn & Suites (310)		118	36	35	71	964
Net New Trips (Proposed-Existing)		50	15	15	30	408

¹ The project trip generation estimates were based on ITE average trip rate.

¹⁰ *Trip Generation, 9th Edition*, Institute of Transportation Engineers, 2012.

TRIP DISTRIBUTION

Trip distribution provides an estimation of where project-related trips would be coming from and going to. It is given as percentages at key gateways to the study area and is used to route project trips through the study intersections. The trip distribution was estimated using the City of Wilsonville travel demand model and the existing hotel traffic counts.¹¹

Figure 3 on the following page shows the expected trip distribution and project trip routing for the net new trips generated by the Hilton Hampton Inns and Suites.

FUTURE TRAFFIC VOLUMES AND OPERATING CONDITIONS

Future traffic volumes were estimated and used to analyze future intersection operations at the study intersection for each scenario.

- Existing + Project
- Existing + Stage II (traffic from other developments that have State II approval or are under construction)
- Existing + Stage II + Project

The future operating scenarios include various combinations of three types of traffic: existing, project, and Stage II. The Stage II scenario includes traffic that is expected for development that is built but not yet occupied, under construction, or approved by the city. The amount of Stage II traffic is estimated based on the Stage II list provided by City staff.¹² The Stage II list and the corresponding p.m. peak hour trip generation estimates for these developments are included in the appendix.

Figure 4 shows the p.m. peak hour traffic volumes used to analyze the “Existing plus Project” scenario, while Figure 5 on the following page shows the volumes used to analyze the “Existing plus Stage II” and “Existing plus Stage II plus Project” scenarios.

¹¹ *Wilsonville Travel Forecast Model*, Select zone model run for Quality Inn Hotel and Wilsonville Assisted Living Traffic Analysis Zone, June 2017.

¹² Email from Daniel Pauly, City of Wilsonville, June 16, 2017 (see appendix for Stage II list).

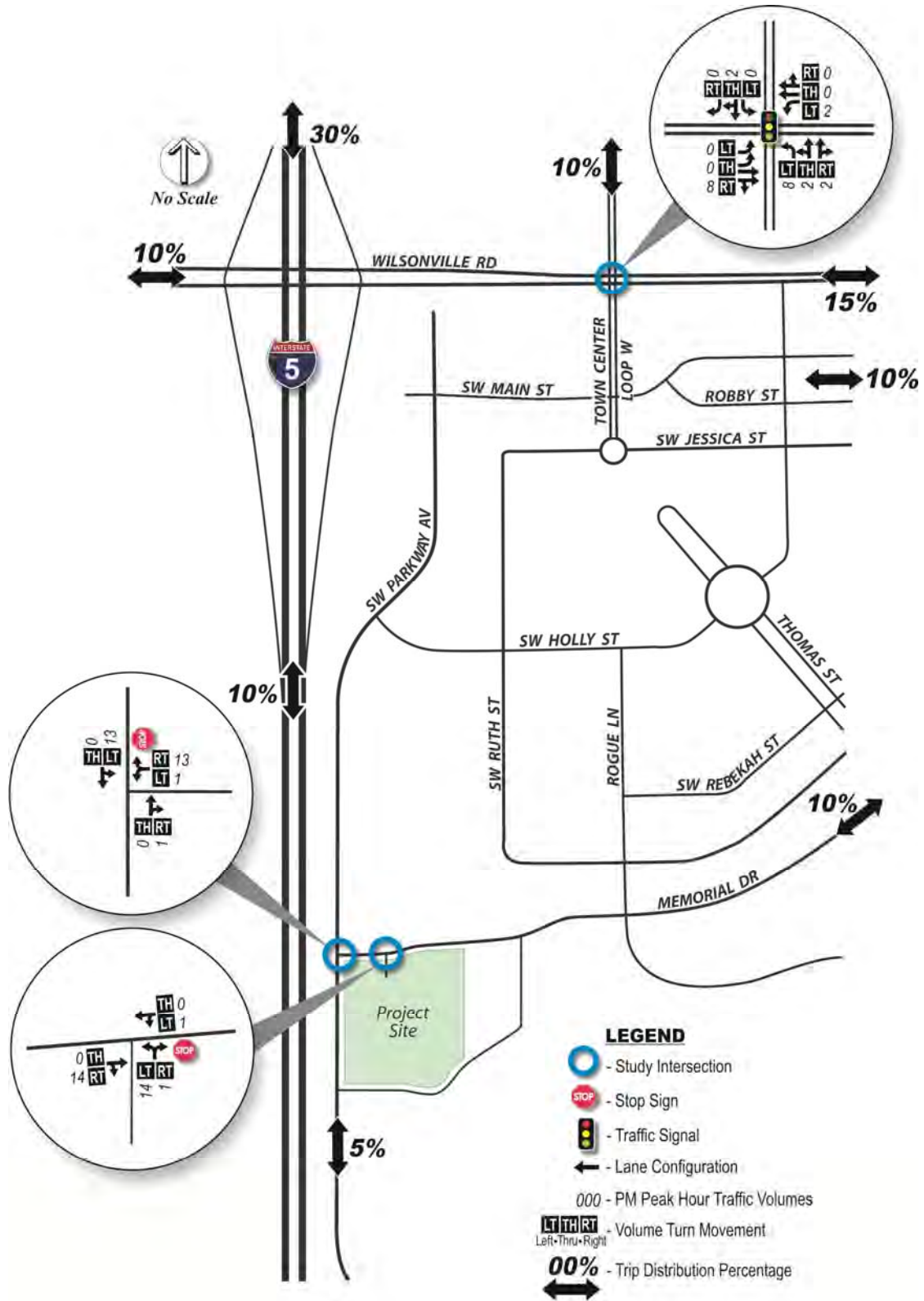


Figure 3: Trip Distribution and PM Peak Hour Project Volumes

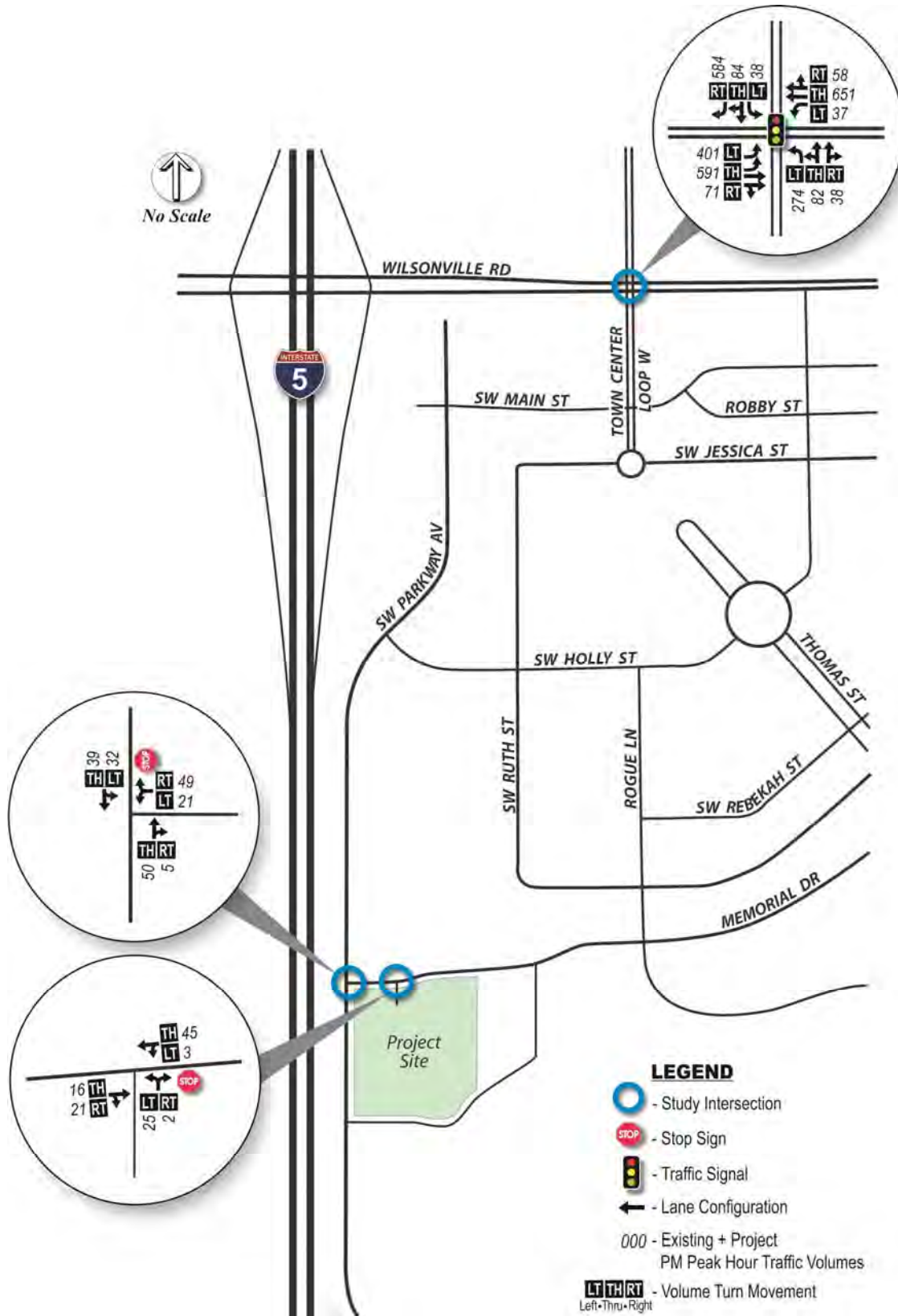


Figure 4: Existing plus Project PM Peak Hour Traffic Volumes

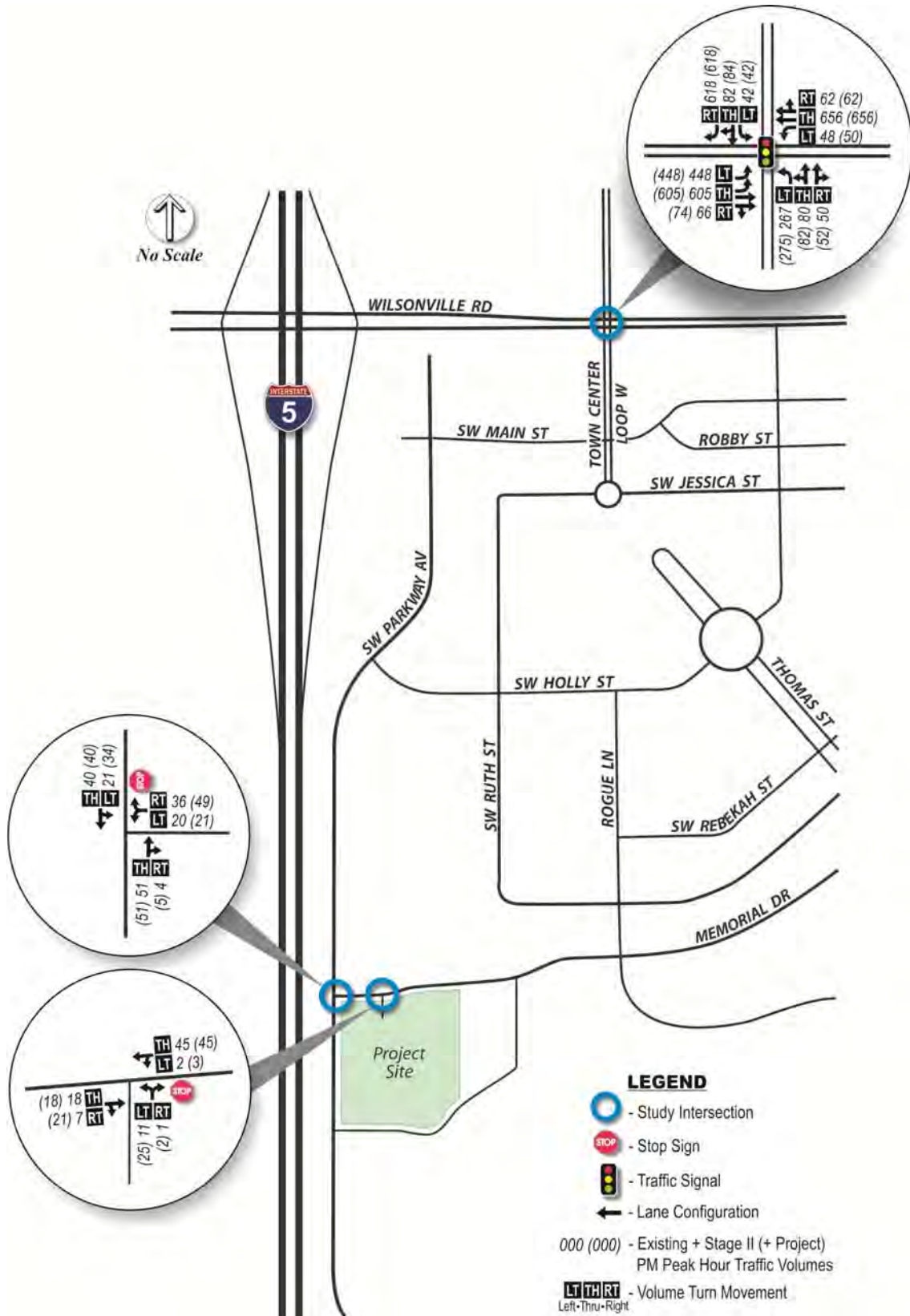


Figure 5: Existing plus Stage II (plus Project) PM Peak Hour Traffic Volumes

INTERSECTION OPERATIONS

The study intersection operating conditions for the three future scenarios are listed in Table 9. As shown, all study intersections meet the City’s operating standards for all future scenarios. Therefore, the development does not require off-site mitigations to the study area transportation network.

Table 9: Future Project and Stage II Intersection Operations Comparison

Intersection (Traffic Control)	Operating Standard	Existing + Project			Existing + Stage II			Existing + Stage II + Project		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.9	D	0.73	43.5	D	0.76	43.7	D	0.77
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.2	A/A	0.09	9.1	A/A	0.07	9.2	A/A	0.09
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.2	A/A	0.04	9.0	A/A	0.02	9.2	A/A	0.04

Signalized Intersections:

- Delay = Average Intersection Delay (sec.)
- LOS = Level of Service of Intersection
- v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

- Delay = Critical Movement approach Delay (sec.)
- LOS = Level of Service of Major/Minor Street
- v/c = Volume-to-Capacity Ratio of Intersection

Project Trips through the I-5/Wilsonville Road Interchange Area

The project trips through the I-5/Wilsonville Road interchange area were estimated based on the trip generation and distribution assumptions as shown previously in Figure 3. The proposed Hilton Hampton Inns and Suites is expected to generate 24 net new p.m. peak hour trips through the I-5/Wilsonville Road interchange area, which includes all movements of the Wilsonville Road/Town Center Loop West intersection.

SITE PLAN EVALUATION

The project sponsor provided a site plan with the updated building and parking layout, which is included in the appendix. This site plan was evaluated to identify potential concerns related to turn warrants, site access and spacing, site distance, circulation and safety, bicycle and pedestrian facilities, and parking.

Left Turn Lane Evaluation

Based on the existing and future traffic volume scenarios, left turn lane warrants were evaluated for the southbound movement on SW Parkway Avenue at Memorial Drive. A left turn lane was not warranted under any of the traffic analysis scenarios.

Site Access

The proposed Hilton Hampton Inns and Suites is expected to use the existing site access location along Memorial Drive shown in the photo to the right. There is a secondary access location approximately 370 feet east of the primary driveway that is a shared private road with the Marquis Wilsonville Assisted Living facilities. It is anticipated that the majority of the project trips will use the primary access location. There are no existing or proposed stop control signs at the primary site access.¹³



Existing Site Access Location along Memorial Drive

Access Spacing and Sight Distance

The existing driveway along Memorial Drive is approximately 120 feet east of the SW Parkway Avenue/Memorial Drive and 150 feet of the existing driveway to Wilsonville Honda, which meet the minimum access spacing standards (100 feet) in the TSP for a collector.¹⁴

Existing site driveways will need to meet American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements.¹⁵ This includes providing adequate sight triangles at driveway that are clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance.

Based on preliminary observations, there are no existing sight distance concerns at the existing driveway or study intersections.¹⁶ However, prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Bicycle and Pedestrian Facilities

The site plan shows a minimum of five and a half foot sidewalk around the perimeter of the building footprint. There is a concrete landing and stairs with steel guardrails and guardrails leading to a secondary entrance on the southwest corner of the building providing an additional accessible entry to the building.

There is a proposed outdoor seating area for guests with continuous sidewalks that connect to the perimeter sidewalks. Near the driveway on Memorial Drive, the site plan shows a marked crossing from the sidewalk around the perimeter of the building connecting to the existing sidewalk.

¹³ Although no stop sign is present, the operational analysis assumed a stop controlled approach at the driveway to model the “worst-case” scenario as drivers are likely to treat the intersection as a two-way stop.

¹⁴ City of Wilsonville Transportation System Plan, Table 3-2, Amended 2016.

¹⁵ *Geometric Design of Highways and Streets*, AASHTO, 2011.

¹⁶ Preliminary sight distance evaluations were completed on June 23, 2017.

Parking

The proposed Hilton Hampton Inns and Suites is required to comply with the City of Wilsonville Development Code for the number of vehicular parking stalls and bicycle parking spaces that are provided on the site.¹⁷

The site plan provides a total of 143 available parking spaces; 98 standard on-site spaces, 5 accessible on-site spaces, 3 existing off-site spaces, and 37 existing shared off-site spaces. The existing shared off-site spaces are located west of the site from the secondary access and are shared between the hotel and the Marquis Wilsonville Assisted Living facilities.

The required vehicle parking spaces required in the Wilsonville Development Code for the proposed Hilton Hampton Inns and Suites is 78 regular spaces and 2 ADA accessible spaces. The ITE Parking Generation manual requires a peak demand of 1.08 spaces per room for a hotel in a suburban area.¹⁸ The proposed Hilton Hampton Inns and Suites would generate a peak demand of 128 parking spaces.

A summary of the parking requirements including the expected demand, required spaces per the development code, and proposed on-site spaces is shown in Table 10.

Table 10: Parking Requirements

Land Use (Size, Units)	ITE Parking Demand	City Requirements		Proposed Parking
	Parking Demand ¹	Standard Spaces	ADA Accessible Spaces	Total Spaces
Hotel (77.9 KSF, 118 Units)	128 (1.08 per unit)	78 (1 per KSF)	2 (1 per 50 total)	143

¹Parking Demand based on average parking supply ratio for suburban sites.

²Peak Occupancy based on the peak month and peak day of the week (72% occupancy).

As shown, the proposed 143 on-site parking space (98 standard on-site spaces, 5 accessible on-site spaces, 3 existing off-site spaces, and 37 existing shared off-spaces) meets the required parking set by the City of Wilsonville Development Code and the estimated demand from the ITE Parking Generation data.

The ITE parking demand of 153 spaces is a maximum target if the hotel were 100% occupied. Based on several studies provided in the ITE Parking Generation manual, most hotels maintain at least an overall average occupancy ratio of 60 to 70 percent. The peak months on occupancy are in June and July at 72 percent occupancy and the peak day of the week (year round) is Saturday at 72 percent occupancy.

The proposed site plan shows 12 short term bicycle spaces located near the entrance. The City of Wilsonville Development Code states that a hotel is required to have one bicycle stall per five units (minimum of two). The proposed hotel has 118 guest rooms and would therefore require 24 bicycle spaces. As shown in Table 11, the proposed Hilton Hampton Inns and Suites requires 12 additional bicycle spaces.

¹⁷ City of Wilsonville Development Code, Chapter 4.155; Table 5, Adopted July 2013.

¹⁸ *Parking Generation 4th Edition*. Institute of Transportation Engineer. 2004.

Table 11: Bicycle Parking Summary

Land Use (Units)	Required Bicycle Parking by City	Proposed Bicycle Parking
Hotel (118 Units)	24 (1 space per 5 units)	12

Bold/Highlighted: Proposed parking does not meet required parking amount.

It is recommended that 12 additional short term bicycle spaces be added or secure, long-term bicycle storage is considered, as guests may require long-term bicycle parking. Secure, long-term storage would satisfy the condition in the City of Wilsonville Development Code stating that secure, long-term spaces are 50% of the total bicycle spaces required.

PROJECT IMPACT SUMMARY

The proposed Hilton Hampton Inns and Suites to occupy the existing Quality Inn Hotel at 30800 SW Parkway Avenue is anticipated to result in the following impacts:

Trip Generation

- The project site is estimated to generate 408 net new average daily trips (proposed hotel minus existing hotel) including 30 (15 in, 15 out) in the p.m. peak hour.
- Of the total 30 net new project trips, 24 new p.m. peak hour trips are estimated to pass through the I-5/Wilsonville Road interchange area.

Study Intersection Operations

- The Wilsonville Road/Town Center Loop West, SW Parkway Avenue/Memorial Drive, and Memorial Drive/Site Driveway are anticipated to meet the City’s operating standard with an LOS of D or better for all existing and future scenarios.

Site Circulation and Safety

- Prior to occupancy, sight distance at the existing hotel access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Vehicle and Bicycle Parking

- The provided site plan shows a total of 143 parking spaces, including 37 additional shared off-site parking spaces, which meets the City of Wilsonville’s parking requirements and the estimated demand.
- The City of Wilsonville requires 24 bicycle spaces. The site plan shows a total of 12 bicycle spaces located near the front entrance. It is recommended that 12 additional spaces be provided near the front entrance or a variance to code will be required.

Appendix A – Site Plan

INTERSTATE-5

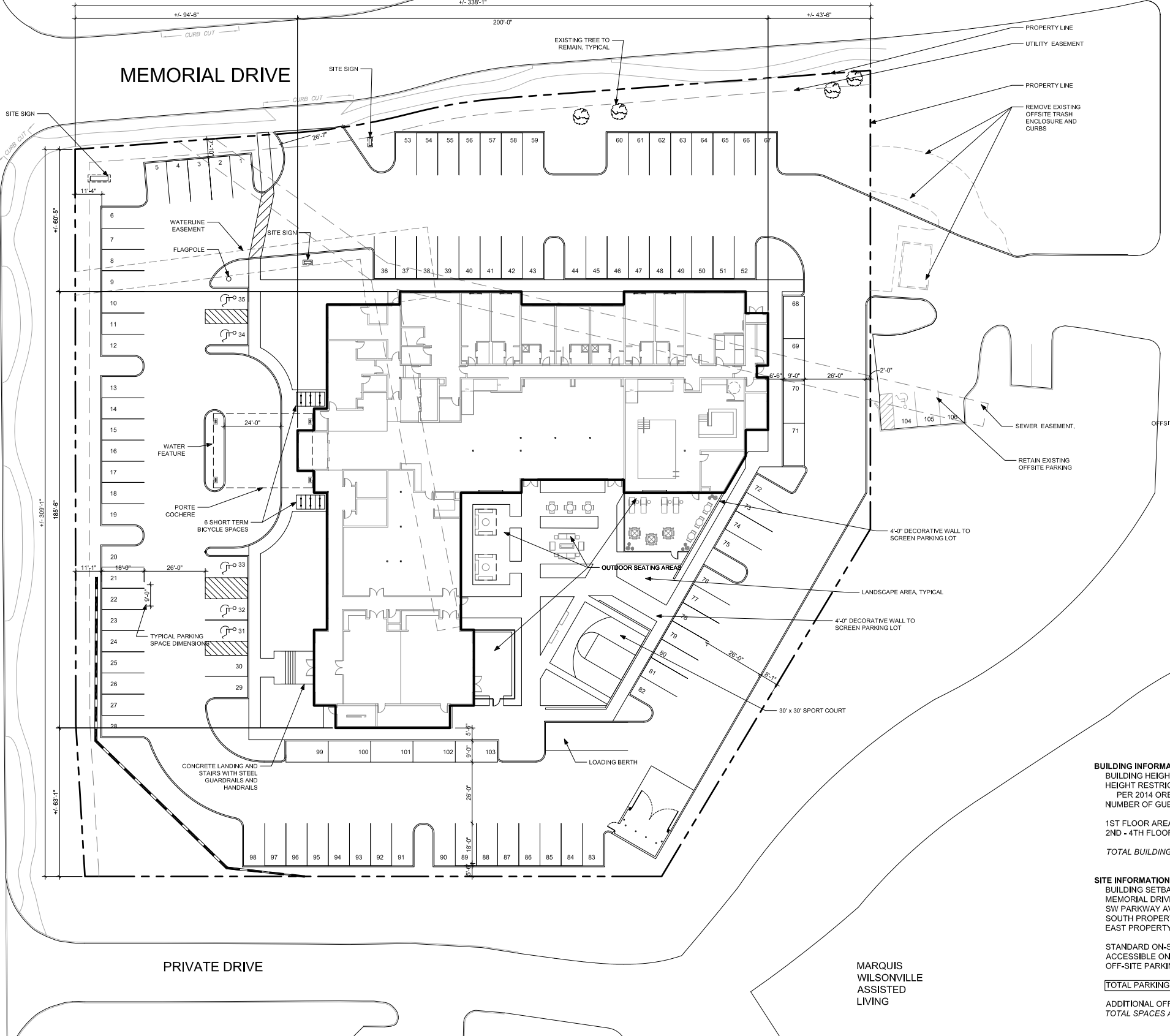
SW PARKWAY AVE

PARKER
JOHNSTONE'S
WILSONVILLE
HONDA

MEMORIAL DRIVE

PRIVATE DRIVE

MARQUIS
WILSONVILLE
ASSISTED
LIVING



BUILDING INFORMATION:
 BUILDING HEIGHT: 4 STORIES
 HEIGHT RESTRICTION: 4 STORIES OR 60'
 PER 2014 OREGON STRUCTURAL SPECIALTY CODE
 NUMBER OF GUEST ROOMS: 118

1ST FLOOR AREA: 21,120 SF
 2ND - 4TH FLOOR AREAS: 18,915 SF
 TOTAL BUILDING AREA: 77,865 SF

SITE INFORMATION:
 BUILDING SETBACK REQUIREMENTS PER WILSONVILLE CODE:
 MEMORIAL DRIVE: 30'
 SW PARKWAY AVE: 30'
 SOUTH PROPERTY LINE: 24'
 EAST PROPERTY LINE: 24'

STANDARD ON-SITE PARKING SPACES: 98
 ACCESSIBLE ON-SITE PARKING SPACES: 5
 OFF-SITE PARKING SPACES (NEAR BUILDING): 3

TOTAL PARKING SPACES NEAR BUILDING: 106 (90% x 118 UNITS)

ADDITIONAL OFF-SITE PARKING SPACES: 37
 TOTAL SPACES AVAILABLE: 143

1 SITE PLAN
SCALE: 1" = 50'-0"



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Appendix B – Existing Peak Hour Traffic Counts

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	SW Memorial Dr
City, State	Wilsonville OR
Study ID #	
Location	45.297639 - -122.768741
Start Date	Tuesday, June 06, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:35:00 PM
PHF (15-Min Int)	0.88

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	51	4	0	21	45	0	0	0	0	0	0	19	0	32	0	55	66	0	51	64	83	0	25

Percent Heavy Vehicles																							
0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	#DIV/0!	0.0%	0.0%	1.2%	#DIV/0!	0.0%

PHV- Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM		3	0	0	2	7		0					0		2	0		
04:05:00 PM		3	0	0	0	1		0					0		1	0		
04:10:00 PM		6	0	0	2	5		0					4		0	0		36
04:15:00 PM		4	0	0	1	4		0					2		3	0		36
04:20:00 PM		4	0	0	3	6		0					0		0	0		44
04:25:00 PM		3	0	0	2	3		0					2		2	0		39
04:30:00 PM		4	0	0	1	1		0					2		1	0		34
04:35:00 PM		7	0	0	2	6		0					2		2	0		40
04:40:00 PM		7	1	0	1	4		0					0		2	0		43
04:45:00 PM		2	1	0	0	4		0					1		4	0		46
04:50:00 PM		6	0	0	2	1		0					4		1	0		41
04:55:00 PM		2	0	0	1	9		0					3		0	0		41 159
05:00:00 PM		3	0	0	0	2		0					1		1	0		36 152
05:05:00 PM		2	2	0	3	3		0					1		6	0		39 164
05:10:00 PM		4	0	0	3	5		0					0		6	0		42 165
05:15:00 PM		2	0	0	2	3		0					0		3	0		45 161
05:20:00 PM		3	0	0	2	4		0					4		4	0		45 165
05:25:00 PM		3	0	0	1	5		0					1		3	0		40 166
05:30:00 PM		6	0	0	3	3		0					0		0	0		42 169
05:35:00 PM		10	1	0	2	4		0					1		3	0		46 171
05:40:00 PM		5	0	0	1	0		0					3		1	0		43 166
05:45:00 PM		5	1	0	1	6		0					1		4	0		49 172
05:50:00 PM		4	1	0	2	2		0					1		0	0		38 168
05:55:00 PM		4	0	0	1	9		0					0		5	0		47 172

Bicycles on Road																	
Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM		0	0	0	0	0		0		0		0		
04:05:00 PM		0	0	0	0	0		0		0		0		
04:10:00 PM		0	0	0	0	0		0		0		0	0	
04:15:00 PM		0	0	0	0	0		0		0		0	0	
04:20:00 PM		0	0	0	0	0		0		0		0	0	
04:25:00 PM		0	0	0	0	0		0		0		0	0	
04:30:00 PM		0	0	0	0	0		0		0		0	0	
04:35:00 PM		0	0	0	0	0		0		0		0	0	
04:40:00 PM		0	0	0	0	0		0		0		0	0	
04:45:00 PM		0	0	0	0	0		0		0		0	0	
04:50:00 PM		0	0	0	0	0		0		0		0	0	
04:55:00 PM		0	0	0	0	0		0		0		0	0	0
05:00:00 PM		0	0	0	0	0		0		0		0	0	0
05:05:00 PM		0	0	0	0	0		0		0		0	0	0
05:10:00 PM		0	0	0	0	0		0		0		0	0	0
05:15:00 PM		0	0	0	0	0		0		0		0	0	0
05:20:00 PM		0	0	0	0	0		0		0		0	0	0
05:25:00 PM		0	0	0	0	0		0		0		0	0	0
05:30:00 PM		0	0	0	0	0		0		0		0	0	0
05:35:00 PM		0	0	0	0	0		0		0		0	0	0
05:40:00 PM		0	0	0	0	0		0		0		0	0	0
05:45:00 PM		0	0	0	0	0		0		0		0	0	0
05:50:00 PM		0	0	0	0	0		0		0		0	0	0
05:55:00 PM		0	0	0	0	0		0		0		0	0	0

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM		3	0	0	2	7		0				0		2	0			
04:05:00 PM		3	0	0	0	1		0				0		1	0			
04:10:00 PM		6	0	0	1	5		0				4		0	0		35	
04:15:00 PM		4	0	0	1	4		0				2		3	0		35	
04:20:00 PM		4	0	0	3	6		0				0		0	0		43	
04:25:00 PM		3	0	0	2	3		0				2		2	0		39	
04:30:00 PM		4	0	0	1	1		0				2		1	0		34	
04:35:00 PM		7	0	0	2	6		0				2		2	0		40	
04:40:00 PM		7	1	0	1	3		0				0		2	0		42	
04:45:00 PM		2	1	0	0	4		0				1		4	0		45	
04:50:00 PM		6	0	0	2	1		0				4		1	0		40	
04:55:00 PM		2	0	0	1	9		0				3		0	0		41	157
05:00:00 PM		3	0	0	0	2		0				1		1	0		36	150
05:05:00 PM		2	2	0	3	3		0				1		6	0		39	162
05:10:00 PM		4	0	0	3	5		0				0		6	0		42	164
05:15:00 PM		2	0	0	2	3		0				0		3	0		45	160
05:20:00 PM		3	0	0	2	4		0				4		4	0		45	164



KEY DATA NETWORK

05:25:00 PM	3	0	0	1	5	0	1	3	0	40	165
05:30:00 PM	6	0	0	3	3	0	0	0	0	42	168
05:35:00 PM	9	1	0	2	4	0	1	3	0	45	169
05:40:00 PM	5	0	0	1	0	0	3	1	0	42	165
05:45:00 PM	5	1	0	1	6	0	1	4	0	48	171
05:50:00 PM	3	1	0	2	2	0	1	0	0	37	166
05:55:00 PM	4	0	0	1	9	0	0	5	0	46	170

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0					0		0	0		
04:05:00 PM	0	0	0	0	0	0	0	0					0		0	0		
04:10:00 PM	0	0	0	0	1	0	0	0					0		0	0	1	
04:15:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:20:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:25:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	
04:35:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	
04:40:00 PM	0	0	0	0	0	1	0	0					0		0	0	1	
04:45:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:50:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:55:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	2
05:00:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	2
05:05:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	2
05:10:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:15:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:20:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:25:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:30:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:35:00 PM	1	0	0	0	0	0	0	0					0		0	0	1	2
05:40:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	1
05:45:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	1
05:50:00 PM	1	0	0	0	0	0	0	0					0		0	0	1	2
05:55:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	2

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	0	0	0		
04:05:00 PM	0	0	0	0		
04:10:00 PM	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	
04:30:00 PM	0	0	1	0	1	
04:35:00 PM	0	0	0	0	1	
04:40:00 PM	0	0	0	0	1	
04:45:00 PM	0	0	0	0	0	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0
04:55:00 PM	0	0	0	0 1
05:00:00 PM	0	0	0	0 1
05:05:00 PM	0	0	0	0 1
05:10:00 PM	0	0	1	1 2
05:15:00 PM	0	0	0	1 2
05:20:00 PM	0	0	0	1 2
05:25:00 PM	0	0	0	0 2
05:30:00 PM	0	0	0	0 1
05:35:00 PM	0	0	0	0 1
05:40:00 PM	0	0	0	0 1
05:45:00 PM	0	0	1	1 2
05:50:00 PM	0	0	0	1 2
05:55:00 PM	0	0	0	1 2

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	Quality Inn Dwy
City, State	Wilsonville OR
Study ID #	
Location	45.297696 - -122.768204
Start Date	Tuesday, June 06, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:05:00 PM
PHF (15-Min Int)	0.69

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
8	0	0	1	0	0	0	0	0	18	7	0	3	43	0	0	9	0	25	46	11	0	51	18

Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	9.1%	0.0%	0.0%	0.0%

PHV- Bicycles														PHV- Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	11	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	13	
04:20:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	16	
04:25:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	15	
04:30:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	14	
04:35:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	16	
04:40:00 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	15	
04:45:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	16	
04:50:00 PM	1	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	17	
04:55:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	16	57
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	13	56
05:05:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	7	0	0	18	67
05:10:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	0	5	0	0	23	69
05:15:00 PM	2	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	29	72
05:20:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	1	6	0	0	27	78
05:25:00 PM	1	0	0	1	0	0	0	0	0	1	0	0	0	3	0	0	24	78
05:30:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	19	77
05:35:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	1	2	0	0	16	78
05:40:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	16	79
05:45:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	19	80
05:50:00 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	16	77
05:55:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	16	79

Bicycles on Road																	
Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				Quality Inn Dwy				Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR	
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum	
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	11	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	13	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	15	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	14	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	13	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	16	
04:40:00 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	15	
04:45:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	16	
04:50:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	16	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	15	55
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	54
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	4	1	0	0	7	0	0	18	65
05:10:00 PM	1	0	0	0	0	0	0	0	0	0	2	1	0	0	5	0	0	23	67
05:15:00 PM	2	0	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	29	70
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	1	6	0	0	27	77



KEY DATA NETWORK

05:25:00 PM	1	0	0	1	0	0	0	0	0	0	1	0	0	0	3	0	0	24	77
05:30:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	19	76
05:35:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	1	2	0	0	16	77	
05:40:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	16	78	
05:45:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	19	79	
05:50:00 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	16	77	
05:55:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	16	79	

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR	
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn			Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	0	0	0		
04:05:00 PM	0	0	0	0		
04:10:00 PM	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	
04:35:00 PM	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0	0
04:55:00 PM	0	0	0	0	0 0
05:00:00 PM	0	0	0	0	0 0
05:05:00 PM	0	0	0	0	0 0
05:10:00 PM	0	0	0	0	0 0
05:15:00 PM	0	0	0	0	0 0
05:20:00 PM	0	0	0	0	0 0
05:25:00 PM	0	0	0	0	0 0
05:30:00 PM	0	0	0	0	0 0
05:35:00 PM	0	0	0	0	0 0
05:40:00 PM	0	0	0	0	0 0
05:45:00 PM	1	0	0	0	1 1
05:50:00 PM	1	0	1	0	3 3
05:55:00 PM	0	0	0	0	3 3



KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224

N/S street:	Town Center Loop West
E/W street:	Wilsonville Rd
City, State	Wilsonville OR
Study ID #	
Location	45.298037 - -122.76452
Start Date	Tuesday, June 06, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:40:00 PM
Peak 15 Min Start	05:25:00 PM
PHF (15-Min Int)	0.96

Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
268	82	43	1	43	83	593	0	408	595	60	1	38	630	60	0	394	719	1064	728	182	550	1492	681

Percent Heavy Vehicles

1.1%	2.4%	2.3%	0.0%	0.0%	2.4%	1.0%	0.0%	1.5%	0.7%	6.7%	0.0%	0.0%	1.9%	0.0%	0.0%	1.5%	1.1%	1.3%	1.6%	3.3%	1.5%	1.4%	0.7%
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

PHV- Bicycles

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	3	7	7	0	11	25

All Vehicle Volumes

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	11	5	3	0	0	7	53	0	43	51	6	0	0	47	3	0		
04:05:00 PM	25	5	4	0	2	6	52	0	40	42	6	0	1	43	0	0		
04:10:00 PM	18	1	2	0	2	9	47	0	34	43	4	0	5	61	6	0	687	
04:15:00 PM	21	10	3	0	3	1	54	0	42	62	12	0	3	59	5	0	733	
04:20:00 PM	13	10	10	0	6	6	40	0	39	42	3	0	3	40	4	0	723	
04:25:00 PM	10	9	4	0	3	5	34	0	23	43	2	0	1	46	4	0	675	
04:30:00 PM	20	4	2	0	3	6	32	0	26	48	6	0	1	55	7	1	611	
04:35:00 PM	13	3	2	0	2	6	49	0	39	52	3	0	7	60	3	0	634	
04:40:00 PM	27	9	5	0	6	9	59	0	38	45	6	0	2	49	4	0	709	
04:45:00 PM	28	10	3	0	1	6	50	0	17	42	7	0	1	60	6	0	729	
04:50:00 PM	25	11	3	0	4	7	43	0	37	53	4	0	3	66	4	0	750	
04:55:00 PM	15	5	3	0	3	8	42	0	49	60	5	0	4	40	4	0	729	2800
05:00:00 PM	23	4	3	0	2	8	50	0	38	50	3	0	0	38	6	0	723	2796
05:05:00 PM	31	5	3	0	4	5	34	0	18	39	7	0	3	65	7	0	684	2791
05:10:00 PM	25	5	3	0	3	9	47	0	37	52	3	0	2	57	6	0	695	2808
05:15:00 PM	21	4	6	0	6	5	72	0	31	43	2	1	6	41	0	0	708	2771
05:20:00 PM	23	6	1	0	4	5	50	0	30	44	5	0	6	50	7	0	718	2786
05:25:00 PM	15	6	3	1	5	8	41	0	31	63	4	0	3	69	9	0	727	2860
05:30:00 PM	16	5	3	0	1	7	52	0	36	55	7	0	3	56	4	0	734	2894
05:35:00 PM	19	12	7	0	4	6	53	0	46	49	7	0	5	39	3	0	753	2905
05:40:00 PM	15	8	4	0	9	4	49	0	23	42	7	0	4	44	3	0	707	2858
05:45:00 PM	17	12	2	0	6	2	39	0	31	57	8	0	8	52	8	0	704	2869
05:50:00 PM	26	5	1	0	10	10	45	0	37	68	3	0	2	55	5	0	721	2876
05:55:00 PM	19	4	2	0	0	5	43	0	41	48	3	0	2	34	5	0	715	2844

Bicycles on Road

Northbound	Southbound	Eastbound	Westbound
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KEY DATA NETWORK

Time	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:10:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
05:15:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	3
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3

Passenger vehicles and light trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				Sum	Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	11	5	3	0	0	7	53	0	43	49	4	0	0	44	3	0		
04:05:00 PM	25	5	4	0	2	6	52	0	40	40	5	0	1	40	0	0		
04:10:00 PM	17	0	2	0	2	8	46	0	34	42	3	0	5	61	6	0	668	
04:15:00 PM	21	10	3	0	3	1	54	0	42	62	12	0	3	57	5	0	719	
04:20:00 PM	13	10	10	0	6	6	40	0	38	42	3	0	3	39	4	0	713	
04:25:00 PM	9	9	4	0	3	5	33	0	23	42	2	0	1	46	4	0	668	
04:30:00 PM	20	4	2	0	3	6	32	0	25	47	6	0	1	55	7	1	604	
04:35:00 PM	13	3	2	0	2	6	49	0	39	50	3	0	7	60	3	0	627	
04:40:00 PM	25	9	5	0	6	8	58	0	38	45	5	0	2	47	4	0	698	
04:45:00 PM	28	9	3	0	1	6	50	0	17	41	6	0	1	60	6	0	717	
04:50:00 PM	25	11	3	0	4	7	43	0	37	53	3	0	3	62	4	0	735	
04:55:00 PM	15	5	3	0	3	8	42	0	48	60	5	0	4	39	4	0	719	2753
05:00:00 PM	23	4	3	0	2	8	50	0	37	50	3	0	0	38	6	0	715	2755
05:05:00 PM	31	5	3	0	4	5	34	0	18	39	7	0	3	62	7	0	678	2753
05:10:00 PM	25	5	3	0	3	8	47	0	36	51	3	0	2	56	6	0	687	2772
05:15:00 PM	20	4	5	0	6	5	72	0	31	41	2	1	6	41	0	0	697	2733
05:20:00 PM	23	6	1	0	4	5	47	0	30	44	5	0	6	49	7	0	706	2746



KEY DATA NETWORK

05:25:00 PM	15	5	3	1	5	8	40	0	29	63	3	0	3	69	9	0	714	2818
05:30:00 PM	16	5	3	0	1	7	52	0	35	55	7	0	3	56	4	0	724	2853
05:35:00 PM	19	12	7	0	4	6	52	0	46	49	7	0	5	39	3	0	746	2865
05:40:00 PM	14	8	4	0	9	4	49	0	23	41	7	0	4	44	3	0	703	2823
05:45:00 PM	16	11	2	0	6	1	38	0	31	57	7	0	8	52	8	0	696	2832
05:50:00 PM	26	5	1	0	10	10	44	0	37	68	3	0	2	54	5	0	712	2842
05:55:00 PM	19	4	2	0	0	4	42	0	39	48	3	0	2	33	5	0	703	2807

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	0	3	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0		
04:10:00 PM	1	1	0	0	0	1	1	0	0	1	1	0	0	0	0	0	19	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	14	
04:20:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	10	
04:25:00 PM	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	7	
04:30:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	7	
04:35:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7	
04:40:00 PM	2	0	0	0	0	1	1	0	0	0	1	0	0	2	0	0	11	
04:45:00 PM	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	12	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	15	
04:55:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	10	47
05:00:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8	41
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	6	38
05:10:00 PM	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	8	36
05:15:00 PM	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	11	38
05:20:00 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	12	40
05:25:00 PM	0	1	0	0	0	0	1	0	2	0	1	0	0	0	0	0	13	42
05:30:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	10	41
05:35:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	7	40
05:40:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	35
05:45:00 PM	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	8	37
05:50:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	9	34
05:55:00 PM	0	0	0	0	0	1	1	0	2	0	0	0	0	1	0	0	12	37

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	2	0	0		
04:05:00 PM	1	2	0	2		
04:10:00 PM	0	0	0	3	10	
04:15:00 PM	1	0	0	3	12	
04:20:00 PM	2	4	0	4	17	
04:25:00 PM	0	4	0	2	20	
04:30:00 PM	4	0	0	3	23	
04:35:00 PM	0	0	0	0	13	
04:40:00 PM	0	0	0	0	7	
04:45:00 PM	1	0	0	1	2	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0	2	
04:55:00 PM	4	2	0	3	11	48
05:00:00 PM	1	2	0	2	14	51
05:05:00 PM	0	0	0	1	15	47
05:10:00 PM	1	0	0	0	7	45
05:15:00 PM	0	0	0	0	2	41
05:20:00 PM	0	2	0	1	4	34
05:25:00 PM	0	0	0	2	5	30
05:30:00 PM	0	0	0	0	5	23
05:35:00 PM	0	1	0	1	4	25
05:40:00 PM	0	0	0	1	3	26
05:45:00 PM	3	0	0	4	10	31
05:50:00 PM	2	2	0	0	12	35
05:55:00 PM	1	0	0	4	16	31

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	SW Memorial Dr
City, State	Wilsonville OR
Study ID #	
Location	45.297639 - -122.768741
Start Date	Wednesday, June 07, 2017
Start Time	04:00:00 PM
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:35:00 PM
PHF (15-Min Int)	0.84

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	48	3	0	17	33	0	0	0	0	0	0	21	0	39	0	51	50	0	60	54	87	0	20

Percent Heavy Vehicles																							
0.0%	4.2%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	3.9%	2.0%	#DIV/0!	1.7%	0.0%	3.4%	#DIV/0!	5.0%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	5	0	0	3	4	0	0	1	0	0	0	32					
04:05:00 PM	0	3	1	0	0	2	0	0	0	2	0	0	34					
04:10:00 PM	0	5	0	0	2	2	0	0	1	1	0	0	46					
04:15:00 PM	0	4	0	0	4	1	0	0	3	3	0	0	43					
04:20:00 PM	0	7	0	0	4	4	0	0	1	4	0	0	40					
04:25:00 PM	0	4	0	0	0	2	0	0	2	0	0	0	34					
04:30:00 PM	0	3	1	0	1	4	0	0	0	3	0	0	31					
04:35:00 PM	0	3	0	0	2	6	0	0	2	1	0	0	30					
04:40:00 PM	0	2	0	0	1	1	0	0	1	0	0	0	24					
04:45:00 PM	0	2	0	0	2	7	0	0	0	0	0	0	33	139				
04:50:00 PM	0	2	0	0	2	1	0	0	1	2	0	0	33	139				
04:55:00 PM	0	3	0	0	3	3	0	0	1	4	0	0	40	141				
05:00:00 PM	0	3	0	0	2	0	0	0	3	1	0	0	40	133				
05:05:00 PM	0	5	0	0	1	1	0	0	2	3	0	0	44	141				
05:10:00 PM	0	5	0	0	0	3	0	0	2	2	0	0	35	136				
05:15:00 PM	0	3	0	0	1	5	0	0	1	6	0	0	41	140				
05:20:00 PM	0	4	0	0	1	4	0	0	1	2	0	0	46	156				
05:25:00 PM	0	5	0	0	0	4	0	0	1	6	0	0	48	154				
05:30:00 PM	0	3	0	0	0	0	0	0	2	2	0	0	43	159				
05:35:00 PM	0	8	1	0	1	3	0	0	1	4	0	0	38	161				
05:40:00 PM	0	3	1	0	3	7	0	0	1	6	0	0						
05:45:00 PM	0	1	0	0	4	2	0	0	1	1	0	0						
05:50:00 PM	0	2	0	0	3	2	0	0	3	3	0	0						
05:55:00 PM	0	6	1	0	1	2	0	0	3	3	0	0						

Bicycles on Road																	
Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0					0	0
04:05:00 PM	0	0	0	0	0	0	0	0					0	0
04:10:00 PM	0	0	0	0	0	0	0	0					0	0
04:15:00 PM	0	0	0	0	0	0	0	0					0	0
04:20:00 PM	0	0	1	0	0	0	0	0					1	0
04:25:00 PM	0	0	0	0	0	0	0	0					1	0
04:30:00 PM	0	0	0	0	0	0	0	0					1	0
04:35:00 PM	0	0	0	0	0	0	0	0					0	0
04:40:00 PM	0	0	0	0	0	0	0	0					0	0
04:45:00 PM	0	0	0	0	0	0	0	0					0	0
04:50:00 PM	0	0	0	0	0	0	0	0					0	0
04:55:00 PM	0	0	0	0	0	0	0	0					0	1
05:00:00 PM	0	0	0	0	0	0	0	0					0	1
05:05:00 PM	0	0	0	0	0	0	0	0					0	1
05:10:00 PM	0	0	0	0	0	0	0	0					0	1
05:15:00 PM	0	0	0	0	0	0	0	0					0	1
05:20:00 PM	0	0	0	0	0	0	0	0					0	0
05:25:00 PM	0	0	0	0	0	0	0	0					0	0
05:30:00 PM	0	0	0	0	0	0	0	0					0	0
05:35:00 PM	0	0	0	0	0	0	0	0					0	0
05:40:00 PM	0	0	0	0	0	0	0	0					0	0
05:45:00 PM	0	0	0	0	0	0	0	0					0	0
05:50:00 PM	0	0	0	0	0	0	0	0					0	0
05:55:00 PM	0	0	0	0	0	0	0	0					0	0

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	4	0	0	3	4	0	0					1	0	0			
04:05:00 PM	0	3	1	0	0	2	0	0					0	2	0			
04:10:00 PM	0	5	0	0	2	2	0	0					1	1	0			31
04:15:00 PM	0	4	0	0	4	1	0	0					3	3	0			34
04:20:00 PM	0	7	0	0	4	4	0	0					1	4	0			46
04:25:00 PM	0	4	0	0	0	1	0	0					2	0	0			42
04:30:00 PM	0	3	1	0	1	4	0	0					0	3	0			39
04:35:00 PM	0	3	0	0	2	6	0	0					2	1	0			33
04:40:00 PM	0	2	0	0	1	1	0	0					1	0	0			31
04:45:00 PM	0	2	0	0	2	6	0	0					0	0	0			29
04:50:00 PM	0	2	0	0	2	1	0	0					1	2	0			23
04:55:00 PM	0	3	0	0	3	3	0	0					1	4	0			32 136
05:00:00 PM	0	3	0	0	2	0	0	0					3	1	0			31 133
05:05:00 PM	0	4	0	0	1	1	0	0					2	3	0			34 136
05:10:00 PM	0	5	0	0	0	3	0	0					2	2	0			32 137
05:15:00 PM	0	2	0	0	1	5	0	0					1	6	0			38 137
05:20:00 PM	0	4	0	0	1	4	0	0					1	2	0			39 129



KEY DATA NETWORK

05:25:00 PM	0	5	0	0	0	4	0		1	6	0	43	138
05:30:00 PM	0	3	0	0	0	0	0		2	2	0	35	133
05:35:00 PM	0	8	1	0	1	3	0		1	4	0	41	137
05:40:00 PM	0	3	1	0	3	7	0		1	5	0	45	152
05:45:00 PM	0	1	0	0	4	2	0		1	1	0	47	151
05:50:00 PM	0	2	0	0	2	2	0		3	3	0	41	155
05:55:00 PM	0	6	1	0	1	2	0		3	3	0	37	157

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	1	0	0	0	0		0					0		0	0		
04:05:00 PM	0	0	0	0	0	0		0					0		0	0		
04:10:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:15:00 PM	0	0	0	0	0	0		0					0		0	0	0	
04:20:00 PM	0	0	0	0	0	0		0					0		0	0	0	
04:25:00 PM	0	0	0	0	0	1		0					0		0	0	1	
04:30:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:35:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:40:00 PM	0	0	0	0	0	0		0					0		0	0	0	
04:45:00 PM	0	0	0	0	0	1		0					0		0	0	1	
04:50:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:55:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:00:00 PM	0	0	0	0	0	0		0					0		0	0	0	2
05:05:00 PM	0	1	0	0	0	0		0					0		0	0	1	3
05:10:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:15:00 PM	0	1	0	0	0	0		0					0		0	0	2	4
05:20:00 PM	0	0	0	0	0	0		0					0		0	0	1	4
05:25:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:30:00 PM	0	0	0	0	0	0		0					0		0	0	0	3
05:35:00 PM	0	0	0	0	0	0		0					0		0	0	0	3
05:40:00 PM	0	0	0	0	0	0		0					0		1	0	1	4
05:45:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:50:00 PM	0	0	0	0	1	0		0					0		0	0	2	4
05:55:00 PM	0	0	0	0	0	0		0					0		0	0	1	4

Time	Pedestrians Crossing				15 Min Sum	1 HR Sum
	NB	SB	EB	WB		
04:00:00 PM	0	0		0		
04:05:00 PM	0	0		0		
04:10:00 PM	0	0		0		
04:15:00 PM	0	0		0		
04:20:00 PM	0	0		0		
04:25:00 PM	0	0		0		
04:30:00 PM	0	0		0		
04:35:00 PM	0	0		0		
04:40:00 PM	0	0		0		
04:45:00 PM	0	0		1	1	



KEY DATA NETWORK

04:50:00 PM	0	0	2	3
04:55:00 PM	0	0	0	3 3
05:00:00 PM	0	0	0	2 3
05:05:00 PM	0	0	0	0 3
05:10:00 PM	0	0	0	0 3
05:15:00 PM	0	0	0	0 3
05:20:00 PM	0	0	0	0 3
05:25:00 PM	0	0	0	0 3
05:30:00 PM	0	0	0	0 3
05:35:00 PM	0	0	0	0 3
05:40:00 PM	0	0	2	2 5
05:45:00 PM	0	0	0	2 4
05:50:00 PM	0	0	0	2 2
05:55:00 PM	0	0	2	2 4

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	Quality Inn Dwy
City, State	Wilsonville OR
Study ID #	
Location	45.297696 - -122.768204
Start Date	Wednesday, June 07, 2017
Start Time	04:00:00 PM
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:40:00 PM
PHF (15-Min Int)	0.77

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
13	0	2	1	0	0	0	0	0	13	7	0	1	49	0	0	16	0	20	50	9	0	62	15
Percent Heavy Vehicles																							
7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	0.0%	5.0%	0.0%	0.0%	0.0%	1.6%	6.7%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0		
04:05:00 PM	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	4	0	0	17	
04:15:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	1	4	0	0	22	
04:20:00 PM	1	0	0	0	0	0	0	0	0	1	2	0	0	4	0	0	26	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	19	
04:30:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	15	
04:35:00 PM	1	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	12	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	13	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	10	
04:50:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	11	
04:55:00 PM	1	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	15	64
05:00:00 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	4	0	0	20	67
05:05:00 PM	1	0	0	1	0	0	0	0	0	0	1	0	0	4	0	0	21	70
05:10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	19	66
05:15:00 PM	3	0	0	0	0	0	0	0	0	0	1	0	1	4	0	0	21	66
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	18	62
05:25:00 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	20	67
05:30:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	17	68
05:35:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	18	68
05:40:00 PM	2	0	0	0	0	0	0	0	0	2	2	0	0	5	0	0	22	76
05:45:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	3	0	0	24	82
05:50:00 PM	1	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	28	85
05:55:00 PM	2	0	1	0	0	0	0	0	0	0	1	0	0	4	0	0	25	86

Bicycles on Road				
Northbound	Southbound	Eastbound	Westbound	



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				Quality Inn Dwy				Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0		
04:05:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	4	0	0	16	
04:15:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	1	4	0	0	21	
04:20:00 PM	1	0	0	0	0	0	0	0	0	1	2	0	0	4	0	0	26	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	19	
04:30:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	15	
04:35:00 PM	1	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	12	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	13	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	10	
04:50:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	11	
04:55:00 PM	1	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	15	63
05:00:00 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	4	0	0	20	66
05:05:00 PM	1	0	0	1	0	0	0	0	0	0	1	0	0	4	0	0	21	70
05:10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	19	66
05:15:00 PM	3	0	0	0	0	0	0	0	0	0	1	0	1	4	0	0	21	66
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	18	62



KEY DATA NETWORK

05:25:00 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	20	67
05:30:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	17	68
05:35:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	18	68
05:40:00 PM	1	0	0	0	0	0	0	0	0	2	2	0	0	5	0	0	21	75
05:45:00 PM	0	0	0	0	0	0	0	0	0	3	1	0	0	3	0	0	22	80
05:50:00 PM	1	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	26	83
05:55:00 PM	2	0	1	0	0	0	0	0	0	0	1	0	0	4	0	0	24	84

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2

Time	Pedestrians Crossing				15 Min	1 HR
	NB	SB	EB	WB		
04:00:00 PM	0	0	0	0		
04:05:00 PM	0	0	0	0		
04:10:00 PM	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	
04:20:00 PM	1	0	0	0	1	
04:25:00 PM	0	1	0	0	2	
04:30:00 PM	0	0	0	0	2	
04:35:00 PM	0	0	0	0	1	
04:40:00 PM	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	

K-D-N

KEY DATA NETWORK

04:50:00 PM	0	0	0	0	0
04:55:00 PM	0	0	0	0	2
05:00:00 PM	0	0	0	0	2
05:05:00 PM	0	0	0	0	2
05:10:00 PM	0	0	0	0	2
05:15:00 PM	0	0	0	0	2
05:20:00 PM	0	0	0	0	1
05:25:00 PM	0	0	0	0	0
05:30:00 PM	0	0	0	0	0
05:35:00 PM	0	0	0	0	0
05:40:00 PM	0	0	0	0	0
05:45:00 PM	0	0	0	0	0
05:50:00 PM	0	0	0	0	0
05:55:00 PM	0	0	0	0	0

Data Provided by K-D-N.com 503-594-4224	
N/S street:	Town Center Loop West
E/W street:	Wilsonville Rd
City, State	Wilsonville OR
Study ID #	
Location	45.298037 - -122.76452
Start Date	Wednesday, June 07, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:05:00 PM
PHF (15-Min Int)	0.92

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
264	77	29	0	33	80	574	0	394	587	65	0	31	671	56	1	370	687	1046	759	176	527	1509	650

Percent Heavy Vehicles																							
2.3%	5.2%	0.0%	0.0%	0.0%	6.3%	0.5%	0.0%	1.0%	1.4%	4.6%	0.0%	0.0%	1.5%	0.0%	0.0%	2.7%	1.2%	1.4%	1.3%	4.5%	1.5%	1.3%	1.2%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	8	7	0	8	23

All Vehicle Volumes																		
Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	16	8	3	0	8	2	43	0	46	49	7	0	0	47	4	0		
04:05:00 PM	20	3	2	0	4	0	69	0	25	45	10	0	1	43	3	0		
04:10:00 PM	21	8	4	0	1	3	39	0	32	38	9	0	3	55	3	0	674	
04:15:00 PM	18	5	4	0	3	3	47	0	26	54	4	0	2	63	5	0	675	
04:20:00 PM	26	7	0	0	5	4	45	0	38	51	4	0	1	46	7	0	684	
04:25:00 PM	21	5	5	0	1	3	41	0	30	38	6	0	5	45	3	0	671	
04:30:00 PM	20	7	3	0	6	4	47	0	35	42	2	0	0	58	4	0	665	
04:35:00 PM	14	3	4	0	3	3	38	0	25	49	2	0	5	59	4	0	640	
04:40:00 PM	21	8	6	0	2	7	56	0	43	41	6	0	5	40	0	0	672	
04:45:00 PM	13	6	4	0	0	10	53	0	26	42	8	0	2	51	5	0	664	
04:50:00 PM	18	6	4	0	2	4	56	0	43	45	5	0	2	54	7	0	701	
04:55:00 PM	9	3	4	0	5	8	49	0	34	44	3	0	2	59	5	0	691	2708
05:00:00 PM	27	2	1	0	1	6	41	0	36	49	3	0	2	53	4	0	696	2700
05:05:00 PM	29	11	5	0	1	11	48	0	25	34	2	0	4	63	2	0	685	2710
05:10:00 PM	20	9	2	0	3	3	53	0	32	67	11	0	4	61	9	0	734	2768
05:15:00 PM	23	4	0	0	5	11	58	0	33	66	9	0	1	59	3	0	781	2806
05:20:00 PM	32	7	2	0	2	6	56	0	32	40	2	0	2	45	6	0	778	2804
05:25:00 PM	24	5	2	0	4	6	40	0	35	58	10	0	3	61	2	0	754	2851
05:30:00 PM	19	5	1	0	2	5	45	0	31	45	4	0	3	53	6	0	701	2842
05:35:00 PM	21	8	4	0	4	7	33	0	37	49	8	0	0	35	3	1	679	2843
05:40:00 PM	22	9	1	0	3	7	40	0	24	38	2	0	3	65	2	0	645	2824
05:45:00 PM	20	8	3	0	1	6	55	0	32	52	6	0	5	63	7	0	684	2862
05:50:00 PM	15	3	1	0	3	4	41	0	32	55	9	0	4	59	3	0	703	2845
05:55:00 PM	21	8	4	0	5	13	52	0	23	45	1	0	3	57	5	0	724	2857

Bicycles on Road																		
	Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	3
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	4
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger vehicles and light trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				Sum	Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	15	8	3	0	8	2	42	0	44	47	5	0	0	46	3	0		
04:05:00 PM	20	3	2	0	4	0	68	0	25	43	10	0	1	41	3	0		
04:10:00 PM	19	7	4	0	1	3	39	0	30	37	8	0	3	54	2	0	650	
04:15:00 PM	16	5	4	0	2	3	46	0	26	54	4	0	2	59	5	0	653	
04:20:00 PM	25	7	0	0	4	4	43	0	38	51	3	0	1	46	7	0	662	
04:25:00 PM	21	5	5	0	1	3	40	0	30	37	5	0	5	43	3	0	653	
04:30:00 PM	20	7	3	0	6	4	47	0	33	41	2	0	0	57	3	0	650	
04:35:00 PM	14	3	4	0	3	3	38	0	25	49	2	0	5	57	4	0	628	
04:40:00 PM	20	7	6	0	2	6	55	0	43	40	6	0	5	40	0	0	660	
04:45:00 PM	13	6	4	0	0	10	52	0	26	41	8	0	2	50	5	0	654	
04:50:00 PM	17	5	4	0	2	4	55	0	43	43	4	0	2	52	7	0	685	
04:55:00 PM	9	3	4	0	5	8	49	0	34	44	3	0	2	59	5	0	680	2643
05:00:00 PM	27	2	1	0	1	6	41	0	35	49	3	0	2	52	4	0	686	2643
05:05:00 PM	29	11	5	0	1	11	48	0	25	34	2	0	4	62	2	0	682	2657
05:10:00 PM	20	9	2	0	3	3	53	0	32	67	11	0	4	61	9	0	731	2724
05:15:00 PM	21	4	0	0	5	10	58	0	33	64	7	0	1	59	3	0	773	2763
05:20:00 PM	31	6	2	0	2	5	56	0	32	40	2	0	2	45	6	0	768	2763



KEY DATA NETWORK

05:25:00 PM	24	4	2	0	4	6	39	0	34	57	10	0	3	61	2	0	740	2811
05:30:00 PM	18	5	1	0	2	4	45	0	31	44	4	0	3	51	6	0	689	2802
05:35:00 PM	21	8	4	0	4	7	32	0	36	49	8	0	0	35	3	1	668	2803
05:40:00 PM	22	9	1	0	3	7	40	0	24	38	2	0	3	61	2	0	634	2785
05:45:00 PM	19	7	3	0	1	4	55	0	31	50	6	0	5	63	7	0	671	2819
05:50:00 PM	15	3	1	0	3	4	40	0	32	53	8	0	4	59	3	0	688	2806
05:55:00 PM	21	8	4	0	5	13	52	0	23	44	1	0	3	56	5	0	711	2816

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	1	0	0	0	0	0	1	0	2	2	2	0	0	1	1	0		
04:05:00 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	2	0	0		
04:10:00 PM	2	1	0	0	0	0	0	0	2	1	1	0	0	1	1	0	24	
04:15:00 PM	2	0	0	0	1	0	1	0	0	0	0	0	0	4	0	0	22	
04:20:00 PM	1	0	0	0	1	0	2	0	0	0	1	0	0	0	0	0	22	
04:25:00 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	2	0	0	18	
04:30:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	1	1	0	15	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	
04:40:00 PM	1	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	12	
04:45:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	10	
04:50:00 PM	1	1	0	0	0	0	1	0	0	2	1	0	0	2	0	0	16	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	65
05:00:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	10	57
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	53
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	44
05:15:00 PM	2	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	8	43
05:20:00 PM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	10	41
05:25:00 PM	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	14	40
05:30:00 PM	1	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	12	40
05:35:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	11	40
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	11	39
05:45:00 PM	1	1	0	0	0	2	0	0	1	2	0	0	0	0	0	0	13	43
05:50:00 PM	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	15	39
05:55:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	13	41

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	1	0	0		
04:05:00 PM	0	1	0	1		
04:10:00 PM	0	1	0	1	5	
04:15:00 PM	0	0	0	0	4	
04:20:00 PM	1	0	0	0	3	
04:25:00 PM	0	2	0	1	4	
04:30:00 PM	5	2	0	0	11	
04:35:00 PM	2	1	0	2	15	
04:40:00 PM	0	0	0	0	12	
04:45:00 PM	2	0	0	3	10	



KEY DATA NETWORK

04:50:00 PM	1	0	0	0	6	
04:55:00 PM	0	0	0	0	6	27
05:00:00 PM	0	0	0	2	3	28
05:05:00 PM	1	0	0	0	3	27
05:10:00 PM	0	1	0	0	4	26
05:15:00 PM	0	1	0	0	3	27
05:20:00 PM	3	0	0	3	8	32
05:25:00 PM	1	2	0	1	11	33
05:30:00 PM	1	0	0	1	12	28
05:35:00 PM	0	0	0	1	7	24
05:40:00 PM	0	1	0	0	4	25
05:45:00 PM	1	2	0	0	5	23
05:50:00 PM	3	3	0	4	14	32
05:55:00 PM	0	0	0	0	13	32

Appendix C – Level of Service Description

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials¹. The following two sections provide interpretations of the analysis approaches.

¹ *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level-of-Service Criteria: Automobile Mode

Control Delay (s/vehicle)	LOS by Volume-to-Capacity Ratio	
	$v/c \leq 1.0$	$v/c > 1.0$
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	Approaching Unstable/Tolerable Delays: The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	Forced Flow/Excessive Delays: Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: 2000 Highway Capacity Manual, Transportation Research Board, Washington D.C.

Appendix D – Collision Data

Crash ID	Crash Date	1st Street	2nd Street	Lat	Long	Road Character	Collision Type	Crash Severity	Weather	Road Surface	Light	Cause 1
1402489	2/10/2011	Town Center Loop W	Wilsonville Road	45.30293079	-122.7658000	Intersection	Rear-end	PDO	Clear	Dry	Daylight	Following Too Close
1417347	4/15/2011	Town Center Loop W	Wilsonville Road	45.30293891	-122.7658059	Intersection	Sideswipe	PDO	Clear	Dry	Daylight	Other Improper Driving
1423240	7/9/2011	Wilsonville Road	Town Center Loop W	45.30294599	-122.7669609	Straight	Rear-end	Injury C	Clear	Dry	Daylight	Following Too Close
1428531	8/1/2011	Town Center Loop W	Wilsonville Road	45.30343056	-122.7658029	Alley	Turning	PDO	Clear	Dry	Daylight	Failed to Yield
1441120	11/4/2011	Town Center Loop W	Wilsonville Road	45.30293891	-122.7658059	Intersection	Turning	PDO	Cloudy	Dry	Dusk	Improper Turn
1441796	11/16/2011	Town Center Loop W	Wilsonville Road	45.30293891	-122.7658059	Intersection	Rear-end	PDO	Cloudy	Wet	Daylight	Following Too Close
1461395	3/5/2012	Town Center Loop W	Wilsonville Road	45.30337502	-122.7658032	Straight	Sideswipe	PDO	Clear	Unknown	Daylight	Improper Lane Change
1466602	4/7/2012	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Rear-end	PDO	Clear	Dry	Daylight	Following Too Close
1467440	4/10/2012	Wilsonville Road	Town Center Loop W	45.30293583	-122.7661889	Straight	Sideswipe	PDO	Clear	Dry	Daylight	Improper Lane Change
1471722	5/31/2012	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Turning	PDO	Clear	Dry	Daylight	Disregard Traffic Control Device
1484512	9/2/2012	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Turning	PDO	Clear	Dry	Daylight	Improper Turn
1524478	7/19/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Rear-end	Injury C	Clear	Dry	Daylight	Following Too Close
1530185	8/25/2013	Wilsonville Road	Town Center Loop W	45.30293590	-122.7661945	Straight	Sideswipe	PDO	Cloudy	Wet	Daylight	Improper Lane Change
1532922	9/21/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Turning	Injury C	Cloudy	Dry	Daylight	Disregard Traffic Signal
1536053	10/20/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Angle	Injury C	Clear	Dry	Dark - No Street Lights	Disregard Traffic Signal
1541890	11/29/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Rear-end	PDO	Clear	Dry	Daylight	Following Too Close
1574437	7/3/2014	Town Center Loop W	Wilsonville Road	45.30296944	-122.7602833	Intersection	Turning	Injury C	Cloudy	Dry	Daylight	Improper Turn
1575200	7/14/2014	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Rear-end	Injury C	Clear	Dry	Daylight	Failed to Avoid Vehicle Ahead
1592332	11/13/2014	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	Injury C	Sleet	Ice	Dark - No Street Lights	Other Improper Driving
1595134	11/20/2014	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	PDO	Clear	Dry	Daylight	Disregard Traffic Control Device
1597484	12/18/2014	Wilsonville Road	Town Center Loop W	45.30294167	-122.7666889	Straight	Sideswipe	PDO	Cloudy	Wet	Dark - No Street Lights	Improper Lane Change
1615104	7/17/2015	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	Injury C	Unknown	Unknown	Daylight	Failed to Yield
1622616	9/30/2015	Wilsonville Road	Town Center Loop W	45.30293611	-122.7661944	Straight	Rear-end	Injury C	Clear	Dry	Daylight	Improper Lane Change
1627495	11/28/2015	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658083	Intersection	Rear-end	Injury C	Clear	Dry	Daylight	Failed to Avoid Vehicle Ahead
1628795	12/16/2015	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	Injury C	Rain	Wet	Daylight	Improper Turn

Appendix E – Stage II Project List

Appendix F – HCM Analysis Results

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	401	591	62	34	650	58	266	80	36	38	82	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (prot)	3000	3490		1805	3495		1681	2600		1805	1529	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (perm)	3000	3490		1805	3495		1681	2600		1805	1529	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	418	616	65	35	677	60	277	83	38	40	85	608
RTOR Reduction (vph)	0	6	0	0	5	0	0	13	0	0	104	265
Lane Group Flow (vph)	418	675	0	35	732	0	138	247	0	40	249	75
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	19.1	52.8		4.9	38.6		15.2	15.2		19.6	19.6	19.6
Effective Green, g (s)	19.1	52.3		4.9	38.1		15.2	15.2		19.1	19.1	19.6
Actuated g/C Ratio	0.17	0.48		0.04	0.35		0.14	0.14		0.17	0.17	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	520	1659		80	1210		232	359		313	265	270
v/s Ratio Prot	c0.14	0.19		0.02	c0.21		0.08	c0.10		0.02	c0.16	0.05
v/s Ratio Perm												
v/c Ratio	0.80	0.41		0.44	0.60		0.59	0.69		0.13	0.94	0.28
Uniform Delay, d1	43.7	18.8		51.2	29.7		44.5	45.1		38.4	44.9	39.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.7		2.8	2.2		3.4	5.0		0.1	38.6	0.4
Delay (s)	52.2	19.5		54.0	32.0		47.9	50.1		38.5	83.5	39.5
Level of Service	D	B		D	C		D	D		D	F	D
Approach Delay (s)		31.9			33.0			49.3			60.6	
Approach LOS		C			C			D			E	

Intersection Summary		
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	71.3%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	36	50	4	19	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	23	41	57	5	22	44

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	147	59	0
Stage 1	59	-	-
Stage 2	88	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	850	1004	-
Stage 1	969	-	-
Stage 2	940	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	837	1004	-
Mov Capacity-2 Maneuver	837	-	-
Stage 1	969	-	-
Stage 2	926	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	937	1517	-
HCM Lane V/C Ratio	-	-	0.068	0.014	-
HCM Control Delay (s)	-	-	9.1	7.407	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.218	0.043	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	16	7	2	45	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	21	9	3	58	14	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	30
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1596
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1596
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	907	-	-	1596	-
HCM Lane V/C Ratio	0.017	-	-	0.002	-
HCM Control Delay (s)	9	-	-	7.259	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.052	-	-	0.005	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	401	591	70	37	650	58	274	81	38	38	83	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (prot)	3000	3481		1805	3495		1681	2600		1805	1529	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (perm)	3000	3481		1805	3495		1681	2600		1805	1529	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	418	616	73	39	677	60	285	84	40	40	86	608
RTOR Reduction (vph)	0	7	0	0	5	0	0	13	0	0	103	262
Lane Group Flow (vph)	418	682	0	39	732	0	142	254	0	40	251	78
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	19.0	52.2		5.1	38.3		15.5	15.5		19.7	19.7	19.7
Effective Green, g (s)	19.0	51.7		5.1	37.8		15.5	15.5		19.2	19.2	19.7
Actuated g/C Ratio	0.17	0.47		0.05	0.34		0.14	0.14		0.17	0.17	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	518	1636		83	1201		236	366		315	266	272
v/s Ratio Prot	c0.14	0.20		0.02	c0.21		0.08	c0.10		0.02	c0.16	0.05
v/s Ratio Perm												
v/c Ratio	0.81	0.42		0.47	0.61		0.60	0.69		0.13	0.94	0.29
Uniform Delay, d1	43.7	19.2		51.1	30.0		44.4	45.0		38.3	44.9	39.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.7	0.8		3.0	2.3		3.6	5.2		0.1	39.7	0.4
Delay (s)	52.4	20.0		54.2	32.3		48.0	50.2		38.5	84.6	39.5
Level of Service	D	B		D	C		D	D		D	F	D
Approach Delay (s)		32.3			33.4			49.4			61.2	
Approach LOS		C			C			D			E	

Intersection Summary		
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	71.6%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	21	49	50	4	32	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	24	56	57	5	36	44

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	176	59	0
Stage 1	59	-	-
Stage 2	117	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	818	1004	-
Stage 1	969	-	-
Stage 2	913	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	798	1004	-
Mov Capacity-2 Maneuver	798	-	-
Stage 1	969	-	-
Stage 2	891	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	932	1517	-
HCM Lane V/C Ratio	-	-	0.085	0.024	-
HCM Control Delay (s)	-	-	9.2	7.431	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.279	0.074	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	16	20	3	45	24	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	21	26	4	58	31	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	47
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1573
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1573
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	892	-	-	1573	-
HCM Lane V/C Ratio	0.038	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	7.294	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.118	-	-	0.007	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing + Project PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	448	605	66	48	656	62	267	80	50	42	82	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.88	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	3000	3487		1805	3492		1681	2600		1805	1527	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	3000	3487		1805	3492		1681	2600		1805	1527	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	467	630	69	50	683	65	278	83	52	44	85	644
RTOR Reduction (vph)	0	7	0	0	6	0	0	18	0	0	109	263
Lane Group Flow (vph)	467	692	0	50	742	0	139	256	0	44	259	98
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	20.5	50.2		6.8	36.5		15.5	15.5		20.0	20.0	20.0
Effective Green, g (s)	20.5	49.7		6.8	36.0		15.5	15.5		19.5	19.5	20.0
Actuated g/C Ratio	0.19	0.45		0.06	0.33		0.14	0.14		0.18	0.18	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	559	1575		111	1142		236	366		319	270	276
v/s Ratio Prot	c0.16	0.20		0.03	c0.21		0.08	c0.10		0.02	c0.17	0.06
v/s Ratio Perm												
v/c Ratio	0.84	0.44		0.45	0.65		0.59	0.70		0.14	0.96	0.36
Uniform Delay, d1	43.1	20.6		49.8	31.6		44.3	45.0		38.2	44.8	39.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.3	0.9		2.1	2.9		3.1	5.3		0.1	42.8	0.6
Delay (s)	53.4	21.5		51.9	34.5		47.4	50.3		38.3	87.6	39.9
Level of Service	D	C		D	C		D	D		D	F	D
Approach Delay (s)		34.3			35.6			49.3			62.5	
Approach LOS		C			D			D			E	

Intersection Summary		
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	73.9%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	36	50	4	21	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	23	41	57	5	24	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	152	59	0
Stage 1	59	-	-
Stage 2	93	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	844	1004	-
Stage 1	969	-	-
Stage 2	936	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	830	1004	-
Mov Capacity-2 Maneuver	830	-	-
Stage 1	969	-	-
Stage 2	921	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	934	1517	-
HCM Lane V/C Ratio	-	-	0.068	0.016	-
HCM Control Delay (s)	-	-	9.1	7.411	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.219	0.048	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	18	7	2	45	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	23	9	3	58	13	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	32
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1593
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1593
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	905	-	-	1593	-
HCM Lane V/C Ratio	0.016	-	-	0.002	-
HCM Control Delay (s)	9	-	-	7.264	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.048	-	-	0.005	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing + Project + Stage II PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↔		↔	↑↔		↔	↔↔		↔	↑↔	↔
Volume (vph)	448	605	73	50	656	62	274	81	52	42	83	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.88	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	3000	3479		1805	3492		1681	2600		1805	1527	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	3000	3479		1805	3492		1681	2600		1805	1527	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	467	630	76	52	683	65	285	84	54	44	86	644
RTOR Reduction (vph)	0	7	0	0	6	0	0	19	0	0	108	260
Lane Group Flow (vph)	467	699	0	52	742	0	142	262	0	44	261	101
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	20.4	49.9		6.8	36.3		15.7	15.7		20.1	20.1	20.1
Effective Green, g (s)	20.4	49.4		6.8	35.8		15.7	15.7		19.6	19.6	20.1
Actuated g/C Ratio	0.19	0.45		0.06	0.33		0.14	0.14		0.18	0.18	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	556	1562		111	1136		239	371		321	272	277
v/s Ratio Prot	c0.16	0.20		0.03	c0.21		0.08	c0.10		0.02	c0.17	0.07
v/s Ratio Perm												
v/c Ratio	0.84	0.45		0.47	0.65		0.59	0.71		0.14	0.96	0.37
Uniform Delay, d1	43.2	20.9		49.9	31.8		44.2	45.0		38.1	44.8	39.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.6	0.9		2.3	2.9		3.3	5.6		0.1	42.6	0.6
Delay (s)	53.8	21.8		52.1	34.7		47.5	50.6		38.2	87.4	40.0
Level of Service	D	C		D	C		D	D		D	F	D
Approach Delay (s)		34.6			35.8			49.5			62.5	
Approach LOS		C			D			D			E	

Intersection Summary		
HCM 2000 Control Delay	43.7	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.77	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	74.1%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	21	49	50	4	34	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	24	56	57	5	39	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	182	59	0
Stage 1	59	-	-
Stage 2	123	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	812	1004	-
Stage 1	969	-	-
Stage 2	907	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	791	1004	-
Mov Capacity-2 Maneuver	791	-	-
Stage 1	969	-	-
Stage 2	883	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	929	1517	-
HCM Lane V/C Ratio	-	-	0.086	0.025	-
HCM Control Delay (s)	-	-	9.2	7.435	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.28	0.078	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	18	20	3	45	24	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	23	26	4	58	31	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	49
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1571
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1571
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	890	-	-	1571	-
HCM Lane V/C Ratio	0.038	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	7.297	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.118	-	-	0.007	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined



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July 18, 2017

Steve Adams
City of Wilsonville
29799 Town Center Loop East
Wilsonville, OR 97070

Subject: Wilsonville Hilton Transportation Impact Study

Dear Steve,

DKS Associates is pleased to submit this transportation impact study for the proposed Hilton Hampton Inns and Suites to replace the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville. Please feel free to call if you have any questions or comments regarding this study.

Sincerely,
DKS Associates

A handwritten signature in blue ink, appearing to read "Scott M.", written over a light blue circular watermark.

Scott Mansur, P.E., PTOE
Transportation Engineer



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1.0 INTRODUCTION AND SUMMARY

This study evaluates the transportation impacts associated with the proposed Hilton Hampton Inns and Suites that is replacing the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon. The proposed four story building will be 77,865 square feet with 118 guest rooms, which are 50 more rooms than the existing Quality Inn Hotel.

The purpose of this transportation impact analysis is to identify recommended mitigation to offset the transportation impacts of the proposed Hilton Hampton Inns and Suites.

The impact analysis is focused on three study intersections in the vicinity of the proposed hotel, which were chosen based on coordination with city staff and are shown in Figure 1.

- Wilsonville Road/Town Center Loop West
- Memorial Drive/Project Access
- SW Parkway Avenue/Memorial Drive

This chapter summarizes the proposed development and the steps taken to analyze the associated impacts on the transportation network. It highlights important elements of the remaining chapters, including a description of the project and the findings of the transportation analysis.

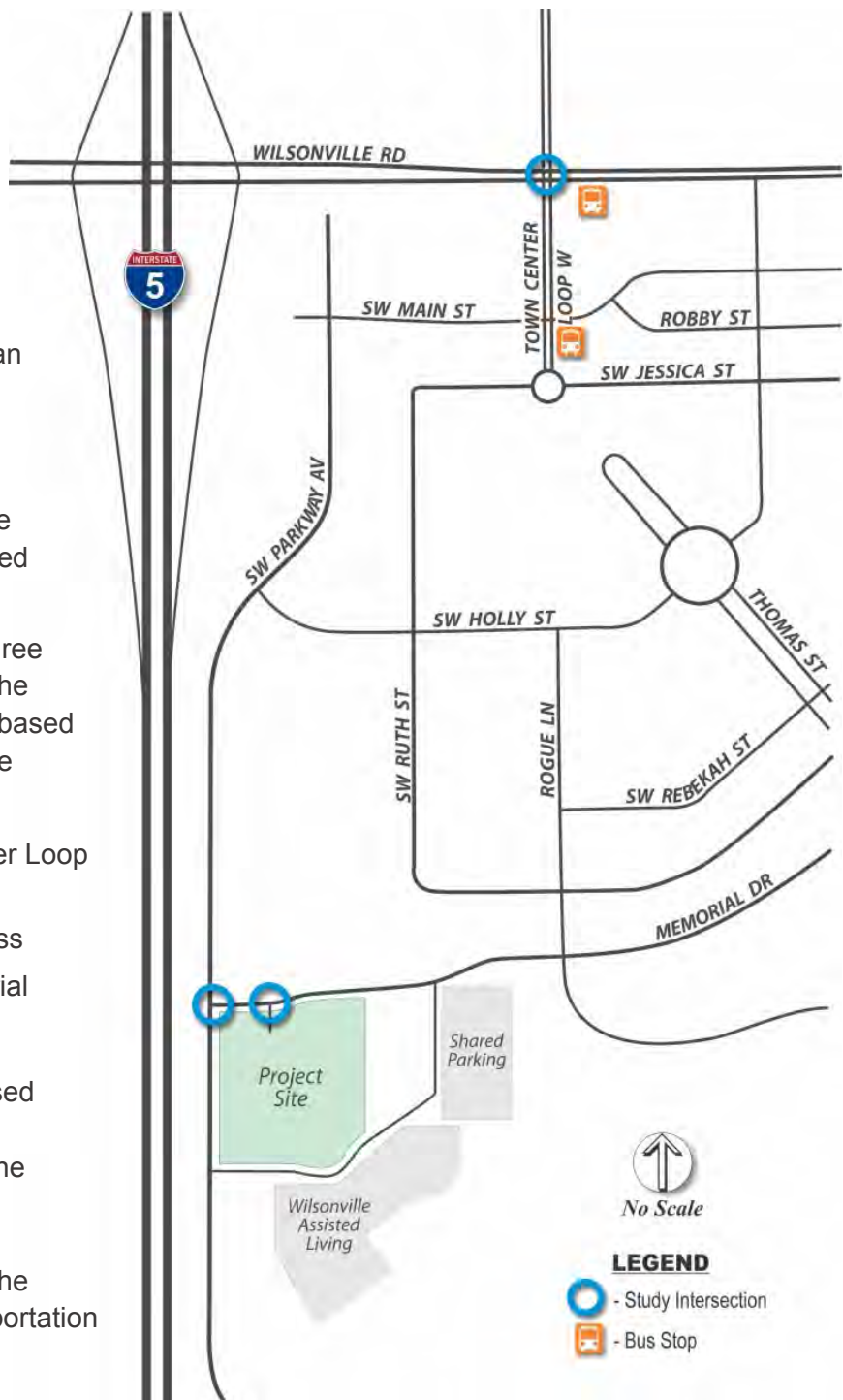


Figure 1: Study Area

Table 1 lists important characteristics of the study area and proposed project.

Table 1: Key Study Area and Proposed Development Characteristics

Characteristics	Information
<u>Study Area</u>	
Number of Study Intersections	3
Analysis Period	Weekday p.m. peak hour (Peak hour between 4-6 p.m.)
<u>Project Site</u>	
Existing Land Use	Quality Inn Hotel (68 guest rooms)
Proposed Development	Hilton Hampton Inns and Suites (118 guest rooms)
Project Access	Primary access from existing driveway off Memorial Drive. Secondary access from existing private road between site and Marquis Wilsonville Assisted Living.
Project Trip Generation	408 net new average daily trips (proposed minus existing) including 30 (15 in, 15 out) in the p.m. peak hour.
I-5/Wilsonville Road Interchange Trips	24 net new p.m. peak hour trips are expected through the I-5/Wilsonville Road interchange area

EXISTING INTERSECTION OPERATIONS

Existing traffic operations at the study intersection were determined for the p.m. peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersections and 2010 Highway Capacity Manual for unsignalized intersections.¹ The results were then compared with the City of Wilsonville’s minimum acceptable level of service (LOS) operating standard. Table 2 lists the estimated delay, LOS, and v/c ratio of each study intersection. The existing study intersections currently meet operating standards.

Table 2: Existing Study Intersection Operations

Intersection (Traffic Control)	Operating Standard	Existing		
		Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.5	D	0.73
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.1	A/A	0.07
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.0	A/A	0.02

Signalized Intersections:

Delay = Average Intersection Delay (sec.)
 LOS = Level of Service of Intersection
 v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

Delay = Critical Movement approach Delay (sec.)
 LOS = Level of Service of Major/Minor Street
 v/c = Volume-to-Capacity Ratio of Intersection

¹ Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000 and 2010.

PROPOSED PROJECT SITE

The proposed Hilton Hampton Inns and Suites replacing the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon is expected to be four stories high with 118 guest rooms, 50 more than the existing Quality Inn Hotel. The first floor is expected to be 21,120 square feet and the second to fourth floors are each expected to be 18,915 square feet for a total of 77,865 square feet. A detailed site plan can be found in the appendix.

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles a development adds to site driveways and the adjacent roadway network during a specified period (i.e., such as the p.m. peak hour). Trip generation estimates are performed using trip rates surveyed at similar land uses, as provided by the Institute of Transportation Engineers (ITE).²

The project site is estimated to generate 408 net new average daily trips (proposed minus existing) including 30 (15 in, 15 out) in the p.m. peak hour. These trips were distributed and added to the roadway network for the future operations analysis to determine how the net new trips (proposed minus existing) would impact the study intersections. Table 3 lists the p.m. peak hour vehicle trip generation estimates for the proposed Hilton Hampton Inns and Suites.

Table 3: Trip Generation Summary for Proposed Hilton Hampton Inns and Suites

Land Use (ITE Code)	Trip Generation Rate ¹	Units	P.M. Peak Hour Trips			Daily Trips
			In	Out	Total	
Existing Quality Inn Hotel (310)	0.60 trips per unit	68	21	20	41	556
Proposed Hilton Inn & Suites (310)		118	36	35	71	964
Net New Trips (Proposed-Existing)		50	15	15	30	408

¹ The project trip generation estimates were based on ITE p.m. peak hour average trip rate.

PROJECT TRAFFIC IMPACT

The impact analysis included the p.m. peak hour project trips through the study intersections and the I-5/Wilsonville Road interchange area and the future traffic operating conditions at the study intersections. The analysis included scenarios that account for Stage II approved developments in the area, including those under construction or built but not yet occupied. The scenarios analyzed include:

- Existing + Project
- Existing + Stage II (includes traffic from other developments that have Stage II approval or are under construction)
- Existing + Project + Stage II

² *Trip Generation, 9th Edition*, Institute of Transportation Engineers, 2012.

The study intersection operating conditions for the three future scenarios are listed in Table 4. All study intersections meet the City’s operating standards for all future project and Stage II scenarios. Therefore, the development does not require off-site mitigations to the study area transportation network.

Table 4: Future Project and Stage II Intersection Operations Comparison

Intersection (Traffic Control)	Operating Standard	Existing + Project			Existing + Stage II			Existing + Stage II + Project		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.9	D	0.73	43.5	D	0.76	43.7	D	0.77
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.2	A/A	0.09	9.1	A/A	0.07	9.2	A/A	0.09
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.2	A/A	0.04	9.0	A/A	0.02	9.2	A/A	0.04

Signalized Intersections:

Delay = Average Intersection Delay (sec.)
 LOS = Level of Service of Intersection
 v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

Delay = Critical Movement approach Delay (sec.)
 LOS = Level of Service of Major/Minor Street
 v/c = Volume-to-Capacity Ratio of Intersection

PROJECT IMPACT SUMMARY

The proposed Hilton Hampton Inns and Suites to occupy the existing Quality Inn Hotel at 30800 SW Parkway Avenue is anticipated to result in the following impacts:

Trip Generation

- The project site is estimated to generate 408 net new average daily trips (proposed hotel minus existing hotel) including 30 (15 in, 15 out) in the p.m. peak hour.
- Of the total 30 net new project trips, 24 new p.m. peak hour trips are estimated to pass through the I-5/Wilsonville Road interchange area.

Study Intersection Operations

- The Wilsonville Road/Town Center Loop West, SW Parkway Avenue/Memorial Drive, and Memorial Drive/Site Driveway are anticipated to meet the City’s operating standard with an LOS of D or better for all existing and future scenarios.

Site Circulation and Safety

- Prior to occupancy, sight distance at the existing hotel access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Vehicle and Bicycle Parking

- The provided site plan shows a total of 143 parking spaces, including 37 additional shared off-site parking spaces, which meets the City of Wilsonville's parking requirements and the estimated demand.
- The City of Wilsonville requires 24 bicycle spaces. The site plan shows a total of 12 bicycle spaces located near the front entrance. It is recommended that 12 additional spaces be provided near the front entrance or a variance to code will be required.

2.0 EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, future planned projects, and existing traffic volumes and operations. Supporting details are provided in the appendix.

STUDY AREA ROADWAY NETWORK

The proposed Hilton Hampton Inns and Suites will replace the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon. Key roadways in the study area are summarized in Table 5 along with their existing roadway characteristics. The functional classifications for City of Wilsonville streets are provided in the *City of Wilsonville Transportation System Plan (TSP)*.³

Table 5: Study Area Roadway Characteristics

Roadway	Classification	Number of Lanes	Posted Speed	Sidewalks	Bike Lanes	On-Street Parking
Wilsonville Road	Major Arterial	4	25	Yes	Yes	No
SW Parkway Avenue	Local Street	2	30 ¹	Partial ²	No	No
Memorial Drive	Collector	2	25	Yes	Yes	No

¹ Speed limit changes to 25 mph south of Memorial Drive

² Sidewalks only on east side of SW Parkway Avenue

PEDESTRIAN AND BICYCLE FACILITIES

Bicycle and pedestrian facilities along both sides of Wilsonville Road and Memorial Drive include six foot sidewalks and six foot bicycle lanes. There are only sidewalks along the east side of SW Parkway Avenue. Along the frontage of the project site, the existing sidewalks are in good condition as shown in the photos below.



Existing Frontage Sidewalks along Memorial Drive (left) and SW Parkway Ave (right)

³ City of Wilsonville Transportation Systems Plan, 2013.

SW Parkway Avenue does not have bicycle lanes; however, it is designated as a Local Street Bikeway as part of the Wilsonville TSP. Local Street Bikeways are designated as an important bicycle connections where bicyclists share the travel lane with motor vehicles.

FUTURE PLANNED PROJECTS

The City of Wilsonville Transportation System Plan includes future planned roadway and intersection projects. The Wilsonville Road/Town Center Loop West intersection is identified to exceed applicable operating standards for future 2035 traffic volumes and is identified as having freight rate deficiencies from small turning radii. There is also an identified lack of trails between Boones Ferry Park and Memorial Park. The following projects are identified in the TSP to alleviate these concerns:

- **SI-04 Wilsonville Road/Town Center Loop West Intersection Improvements:** This project will widen the north leg of the intersection and install a second exclusive southbound right-turn lane (dual lanes) at the intersection. Since this project is not funded, it was not assumed in the transportation analysis.
- **Future Bike/Pedestrian Bridge crossing I-5 at Memorial Drive:** This project will consider installing a bicycle and pedestrian bridge with a shared use path from 5th Street to Memorial Drive across I-5.
- **CIP 9146 –** reconstruction of the bike-ped pathway under I-5 linking Memorial Park and adjacent neighborhoods to Boones Ferry Park, Old Town and the planned extension of the Tonquin Trail from Boones Ferry Road to the Morey's Landing neighborhood.

EXISTING TRAFFIC VOLUMES AND OPERATIONS

Existing traffic volume data, shown in Figure 2, was collected at the study intersections.⁴ The traffic counts that were collected included existing traffic from the 68 room Quality Inn Hotel. Existing p.m. peak hour traffic operations were analyzed at the following study intersection based on coordination with city staff:⁵

- Wilsonville Road/Town Center Loop West
- Memorial Drive/Project Access
- SW Parkway Avenue/Memorial Drive

⁴ Traffic Data was collected by Key Data Network on Tuesday, June 6, 2017 and Wednesday June 7, 2017.

⁵ Email with Steve Adams on May 12, 2017.

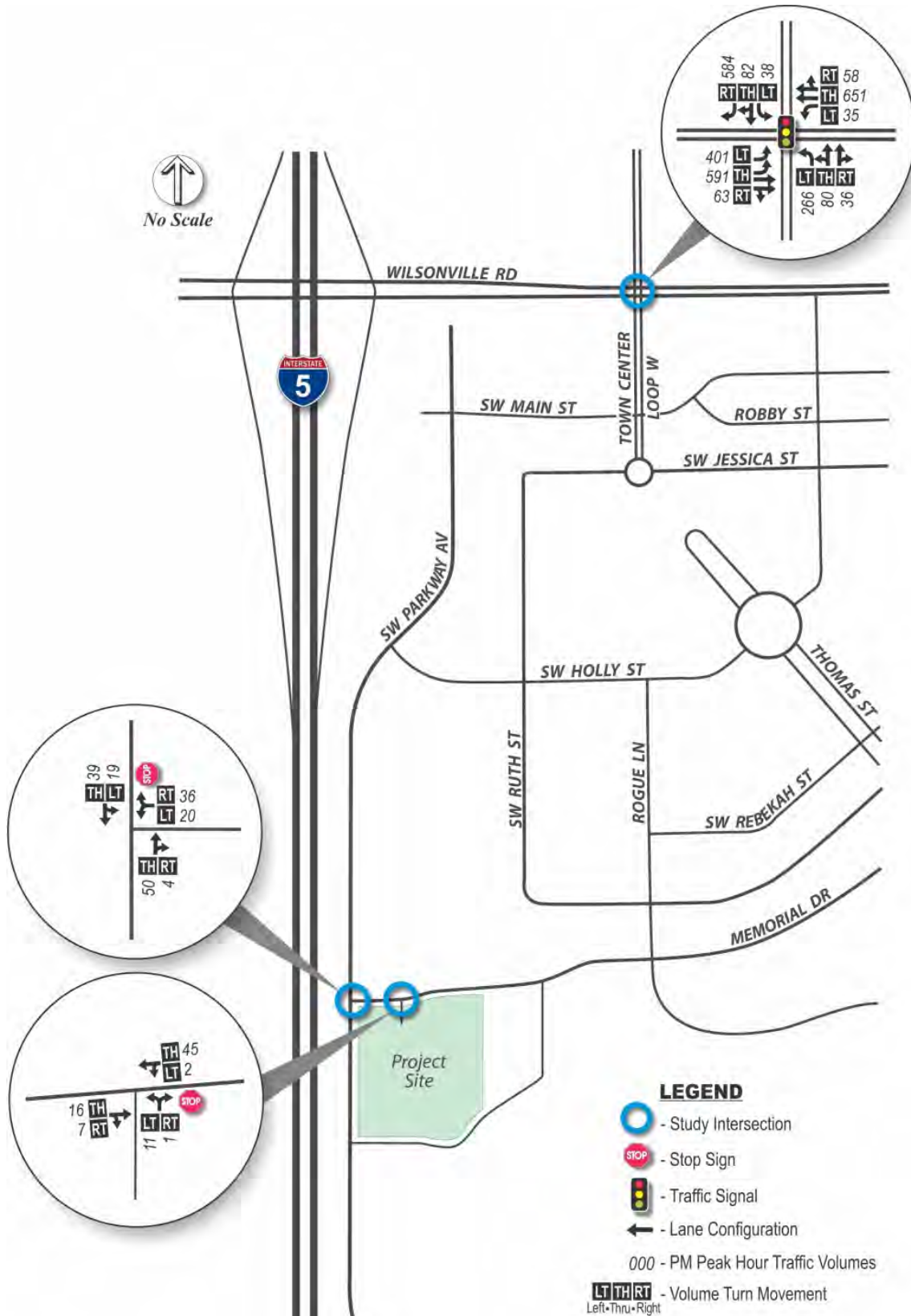


Figure 2: Existing PM Peak Hour Traffic Volumes

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations.

- Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection.⁶ LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.
- Volume-to-capacity (v/c) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

The City of Wilsonville requires the study intersections of public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for peak periods.⁷ While private driveway approaches are not required by City code to meet the City’s LOS standard, safety and operations are still considered.

Existing Operating Conditions

Existing traffic operations at the study intersections were determined for the p.m. peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersections and 2010 Highway Capacity Manual for unsignalized intersections.⁸

Table 6: Existing Study Intersection Operations

Intersection (Traffic Control)	Operating Standard	Existing		
		Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.5	D	0.73
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.1	A/A	0.07
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.0	A/A	0.02

Signalized Intersections:

Delay = Average Intersection Delay (sec.)
 LOS = Level of Service of Intersection
 v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

Delay = Critical Movement approach Delay (sec.)
 LOS = Level of Service of Major/Minor Street
 v/c = Volume-to-Capacity Ratio of Intersection

⁶ A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

⁷ *City of Wilsonville Code*, City of Wilsonville Section 4.140, p.166.

⁸ *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000 and 2010.

The results were then compared with the City of Wilsonville’s minimum acceptable level of service (LOS) operating standard of LOS D. As shown in Table 6, all study intersections currently meet the City of Wilsonville’s minimum acceptable LOS D operating standard.

COLLISION ANALYSIS

Five years of collision records (2011-2015) for the study area were obtained from ODOT’s online database. The data identified 25 collisions at the Wilsonville Road/Town Center Loop West study intersection during the five-year period. There were zero fatal crashes and ten injury crashes (one serious injury) at the study intersection between 2011 and 2015. The majority of the collisions were turning (ten), or rear-end (nine) collisions that occurred during daylight hours. Four crashes occurred at night time, three of which were reported as having no lighting. There were no reported collisions that involved a bicycle or pedestrian.

The crash rate for the Wilsonville Road/Town Center Loop West intersection is below the ODOT critical crash rate for similar intersections (0.86 for urban four-leg signalized intersections) and does not warrant further investigation of safety performance. There were no reported collisions at the SW Parkway Avenue/Memorial Drive and Memorial Drive/Project Access intersections.

Table 7: Collision History at Study Intersections

Intersection	Collisions (by Severity)				Collision Rate ²
	Fatal	Injury	PDO ¹	Total	
Wilsonville Road/Town Center Loop West	0	11	14	25	0.47

¹ PDO = Property damage only.

² Collision rate for intersections = average annual collisions per million entering vehicles (MEV); MEV estimates based on p.m. peak-hour traffic count and applicable factors.

PUBLIC TRANSIT SERVICE

South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and the surrounding area.⁹ Route 4 and 2x travel on Wilsonville Road with one stop located on the southeast corner of Main Street/Town Center Loop West (Route 4) and one stop on the southeast corner of Wilsonville Road/Town Center Loop West (Route 2x).

Route 4 primarily travels along Wilsonville Road connecting key places including Graham Oaks Nature Park, Inza Wood Middle School, Boulder Creek, and Town Center Park. Route 2x primarily travels along Parkway Avenue and Canyon Creek Road connecting key places including City Hall, Xerox, Argyle Square, and the Tualatin Park and Ride.

⁹ South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and make connections to TriMet in Portland, Cherriots in Salem, and Canby Area Transit.

3.0 PROJECT IMPACTS

This chapter reviews the impacts that the net new trips from the proposed Hilton Hampton Inns and Suites may have on the previously identified study intersections. The analysis includes the trip generation, trip distribution, future year traffic volumes and operating conditions, and an evaluation of the project site plan.

PROJECT SITE

The proposed Hilton Hampton Inns and Suites replacing the existing Quality Inn Hotel located at 30800 SW Parkway Avenue in Wilsonville, Oregon, is expected to be four stories high with 118 guest rooms, 50 more rooms than the existing Quality Inn Hotel. The first floor is expected to be 21,120 square feet and the second to fourth floors are expected to be 18,915 square feet for a total of 77,865 square feet. A detailed site plan can be found in the appendix.

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles a development adds to site driveways and the adjacent roadway network during a specified period (i.e., such as the p.m. peak hour). Trip generation estimates are performed using trip rates surveyed at similar land uses, as provided by the Institute of Transportation Engineers (ITE).¹⁰

The project site is estimated to generate 408 net new (proposed minus existing) average daily trips and 30 (15 in, 15 out) p.m. peak hour trips. These trips were distributed and added to the roadway network for the future operations analysis to determine whether the side would impact the study intersections. As previously noted, the existing traffic counts included Table 8 lists the p.m. peak hour vehicle trip generation estimates for the proposed Hilton Hampton Inns and Suites.

Table 8: Trip Generation Summary for Proposed Hilton Inn and Suites

Land Use (ITE Code)	Trip Generation Rate ¹	Units	P.M. Peak Hour Trips			Daily Trips
			In	Out	Total	
Existing Quality Inn Hotel (310)	0.60 trips per unit	68	21	20	41	556
Proposed Hilton Inn & Suites (310)		118	36	35	71	964
Net New Trips (Proposed-Existing)		50	15	15	30	408

¹ The project trip generation estimates were based on ITE average trip rate.

¹⁰ *Trip Generation, 9th Edition*, Institute of Transportation Engineers, 2012.

TRIP DISTRIBUTION

Trip distribution provides an estimation of where project-related trips would be coming from and going to. It is given as percentages at key gateways to the study area and is used to route project trips through the study intersections. The trip distribution was estimated using the City of Wilsonville travel demand model and the existing hotel traffic counts.¹¹

Figure 3 on the following page shows the expected trip distribution and project trip routing for the net new trips generated by the Hilton Hampton Inns and Suites.

FUTURE TRAFFIC VOLUMES AND OPERATING CONDITIONS

Future traffic volumes were estimated and used to analyze future intersection operations at the study intersection for each scenario.

- Existing + Project
- Existing + Stage II (traffic from other developments that have State II approval or are under construction)
- Existing + Stage II + Project

The future operating scenarios include various combinations of three types of traffic: existing, project, and Stage II. The Stage II scenario includes traffic that is expected for development that is built but not yet occupied, under construction, or approved by the city. The amount of Stage II traffic is estimated based on the Stage II list provided by City staff.¹² The Stage II list and the corresponding p.m. peak hour trip generation estimates for these developments are included in the appendix.

Figure 4 shows the p.m. peak hour traffic volumes used to analyze the “Existing plus Project” scenario, while Figure 5 on the following page shows the volumes used to analyze the “Existing plus Stage II” and “Existing plus Stage II plus Project” scenarios.

¹¹ *Wilsonville Travel Forecast Model*, Select zone model run for Quality Inn Hotel and Wilsonville Assisted Living Traffic Analysis Zone, June 2017.

¹² Email from Daniel Pauly, City of Wilsonville, June 16, 2017 (see appendix for Stage II list).

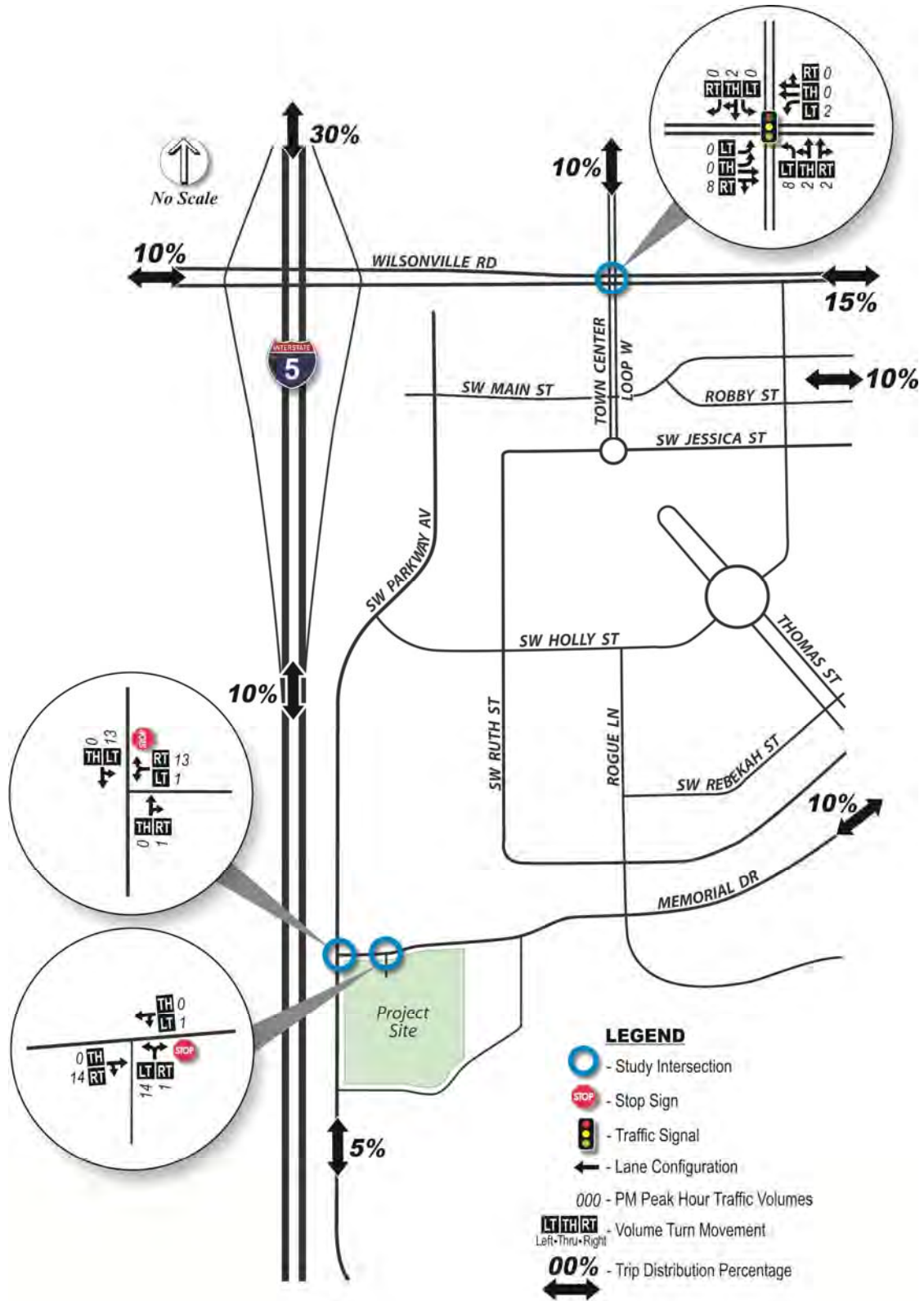


Figure 3: Trip Distribution and PM Peak Hour Project Volumes

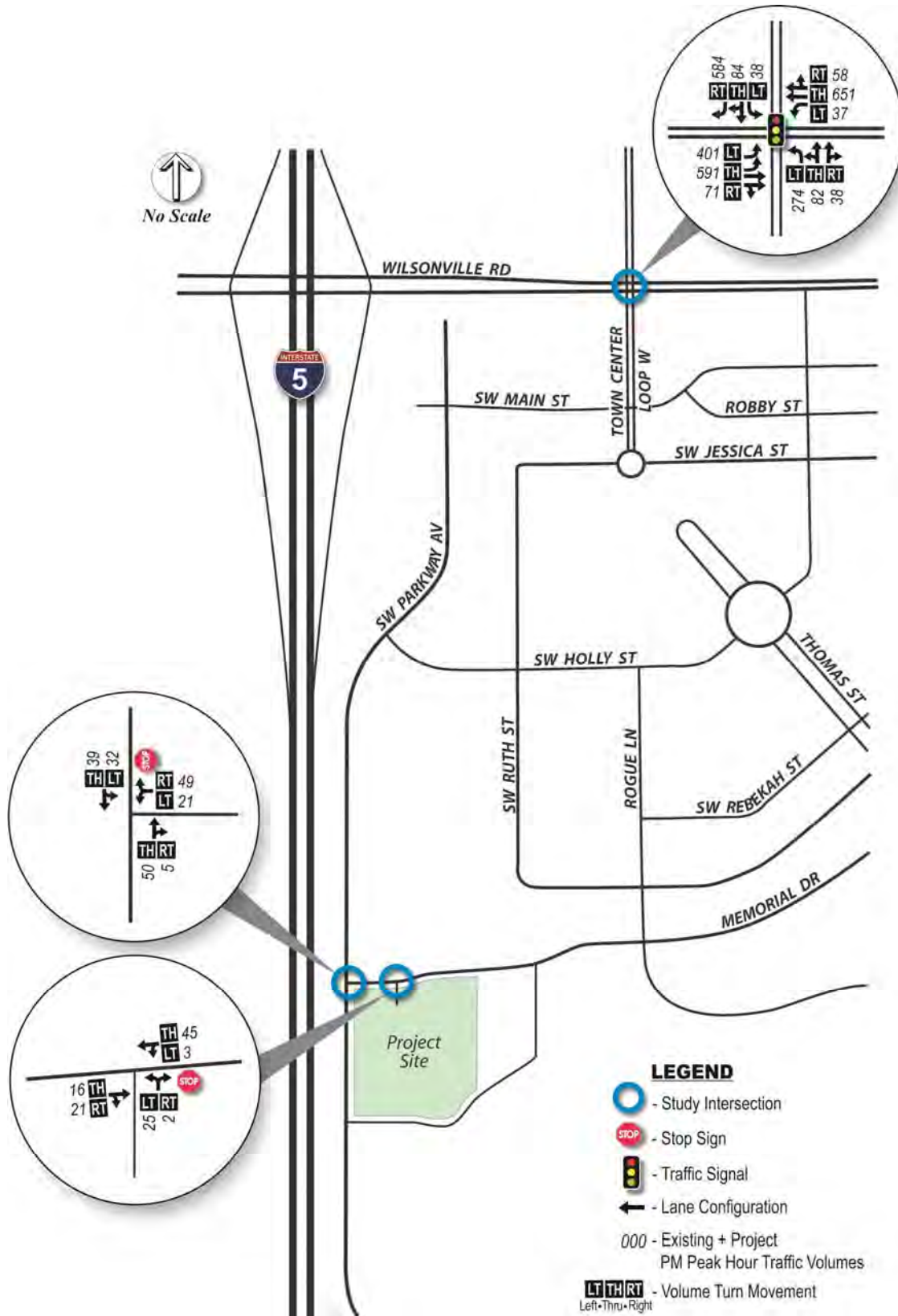


Figure 4: Existing plus Project PM Peak Hour Traffic Volumes

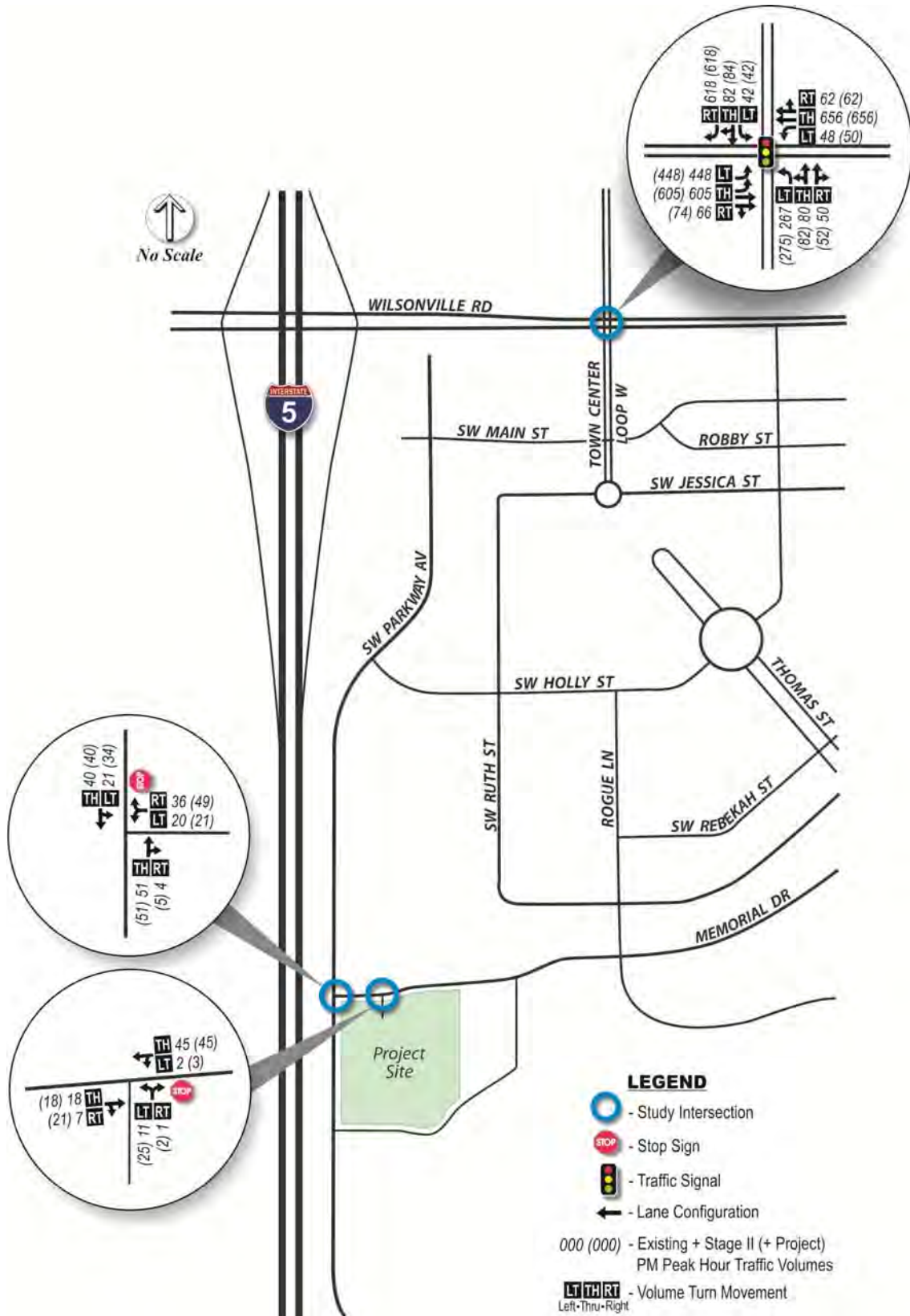


Figure 5: Existing plus Stage II (plus Project) PM Peak Hour Traffic Volumes

INTERSECTION OPERATIONS

The study intersection operating conditions for the three future scenarios are listed in Table 9. As shown, all study intersections meet the City’s operating standards for all future scenarios. Therefore, the development does not require off-site mitigations to the study area transportation network.

Table 9: Future Project and Stage II Intersection Operations Comparison

Intersection (Traffic Control)	Operating Standard	Existing + Project			Existing + Stage II			Existing + Stage II + Project		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
Wilsonville Road/Town Center Loop West (<i>Signalized</i>)	LOS D	41.9	D	0.73	43.5	D	0.76	43.7	D	0.77
SW Parkway Avenue/Memorial Drive (<i>Two-Way Stop</i>)		9.2	A/A	0.09	9.1	A/A	0.07	9.2	A/A	0.09
Memorial Drive/Project Access (<i>Two-Way Stop</i>)		9.2	A/A	0.04	9.0	A/A	0.02	9.2	A/A	0.04

Signalized Intersections:

- Delay = Average Intersection Delay (sec.)
- LOS = Level of Service of Intersection
- v/c = Volume-to-Capacity Ratio of Intersection

Unsignalized Intersections:

- Delay = Critical Movement approach Delay (sec.)
- LOS = Level of Service of Major/Minor Street
- v/c = Volume-to-Capacity Ratio of Intersection

Project Trips through the I-5/Wilsonville Road Interchange Area

The project trips through the I-5/Wilsonville Road interchange area were estimated based on the trip generation and distribution assumptions as shown previously in Figure 3. The proposed Hilton Hampton Inns and Suites is expected to generate 24 net new p.m. peak hour trips through the I-5/Wilsonville Road interchange area, which includes all movements of the Wilsonville Road/Town Center Loop West intersection.

SITE PLAN EVALUATION

The project sponsor provided a site plan with the updated building and parking layout, which is included in the appendix. This site plan was evaluated to identify potential concerns related to turn warrants, site access and spacing, site distance, circulation and safety, bicycle and pedestrian facilities, and parking.

Left Turn Lane Evaluation

Based on the existing and future traffic volume scenarios, left turn lane warrants were evaluated for the southbound movement on SW Parkway Avenue at Memorial Drive. A left turn lane was not warranted under any of the traffic analysis scenarios.

Site Access

The proposed Hilton Hampton Inns and Suites is expected to use the existing site access location along Memorial Drive shown in the photo to the right. There is a secondary access location approximately 370 feet east of the primary driveway that is a shared private road with the Marquis Wilsonville Assisted Living facilities. It is anticipated that the majority of the project trips will use the primary access location. There are no existing or proposed stop control signs at the primary site access.¹³



Existing Site Access Location along Memorial Drive

Access Spacing and Sight Distance

The existing driveway along Memorial Drive is approximately 120 feet east of the SW Parkway Avenue/Memorial Drive and 150 feet of the existing driveway to Wilsonville Honda, which meet the minimum access spacing standards (100 feet) in the TSP for a collector.¹⁴

Existing site driveways will need to meet American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements.¹⁵ This includes providing adequate sight triangles at driveway that are clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance.

Based on preliminary observations, there are no existing sight distance concerns at the existing driveway or study intersections.¹⁶ However, prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Bicycle and Pedestrian Facilities

The site plan shows a minimum of five and a half foot sidewalk around the perimeter of the building footprint. There is a concrete landing and stairs with steel guardrails and guardrails leading to a secondary entrance on the southwest corner of the building providing an additional accessible entry to the building.

There is a proposed outdoor seating area for guests with continuous sidewalks that connect to the perimeter sidewalks. Near the driveway on Memorial Drive, the site plan shows a marked crossing from the sidewalk around the perimeter of the building connecting to the existing sidewalk.

¹³ Although no stop sign is present, the operational analysis assumed a stop controlled approach at the driveway to model the "worst-case" scenario as drivers are likely to treat the intersection as a two-way stop.

¹⁴ City of Wilsonville Transportation System Plan, Table 3-2, Amended 2016.

¹⁵ *Geometric Design of Highways and Streets*, AASHTO, 2011.

¹⁶ Preliminary sight distance evaluations were completed on June 23, 2017.

Parking

The proposed Hilton Hampton Inns and Suites is required to comply with the City of Wilsonville Development Code for the number of vehicular parking stalls and bicycle parking spaces that are provided on the site.¹⁷

The site plan provides a total of 143 available parking spaces; 98 standard on-site spaces, 5 accessible on-site spaces, 3 existing off-site spaces, and 37 existing shared off-site spaces. The existing shared off-site spaces are located west of the site from the secondary access and are shared between the hotel and the Marquis Wilsonville Assisted Living facilities.

The required vehicle parking spaces required in the Wilsonville Development Code for the proposed Hilton Hampton Inns and Suites is 78 regular spaces and 2 ADA accessible spaces. The ITE Parking Generation manual requires a peak demand of 1.08 spaces per room for a hotel in a suburban area.¹⁸ The proposed Hilton Hampton Inns and Suites would generate a peak demand of 128 parking spaces.

A summary of the parking requirements including the expected demand, required spaces per the development code, and proposed on-site spaces is shown in Table 10.

Table 10: Parking Requirements

Land Use (Size, Units)	ITE Parking Demand	City Requirements		Proposed Parking
	Parking Demand ¹	Standard Spaces	ADA Accessible Spaces	Total Spaces
Hotel (77.9 KSF, 118 Units)	128 (1.08 per unit)	78 (1 per KSF)	2 (1 per 50 total)	143

¹Parking Demand based on average parking supply ratio for suburban sites.

²Peak Occupancy based on the peak month and peak day of the week (72% occupancy).

As shown, the proposed 143 on-site parking space (98 standard on-site spaces, 5 accessible on-site spaces, 3 existing off-site spaces, and 37 existing shared off-spaces) meets the required parking set by the City of Wilsonville Development Code and the estimated demand from the ITE Parking Generation data.

The ITE parking demand of 153 spaces is a maximum target if the hotel were 100% occupied. Based on several studies provided in the ITE Parking Generation manual, most hotels maintain at least an overall average occupancy ratio of 60 to 70 percent. The peak months on occupancy are in June and July at 72 percent occupancy and the peak day of the week (year round) is Saturday at 72 percent occupancy.

The proposed site plan shows 12 short term bicycle spaces located near the entrance. The City of Wilsonville Development Code states that a hotel is required to have one bicycle stall per five units (minimum of two). The proposed hotel has 118 guest rooms and would therefore require 24 bicycle spaces. As shown in Table 11, the proposed Hilton Hampton Inns and Suites requires 12 additional bicycle spaces.

¹⁷ City of Wilsonville Development Code, Chapter 4.155; Table 5, Adopted July 2013.

¹⁸ *Parking Generation 4th Edition*. Institute of Transportation Engineer. 2004.

Table 11: Bicycle Parking Summary

Land Use (Units)	Required Bicycle Parking by City	Proposed Bicycle Parking
Hotel (118 Units)	24 (1 space per 5 units)	12

Bold/Highlighted: Proposed parking does not meet required parking amount.

It is recommended that 12 additional short term bicycle spaces be added or secure, long-term bicycle storage is considered, as guests may require long-term bicycle parking. Secure, long-term storage would satisfy the condition in the City of Wilsonville Development Code stating that secure, long-term spaces are 50% of the total bicycle spaces required.

PROJECT IMPACT SUMMARY

The proposed Hilton Hampton Inns and Suites to occupy the existing Quality Inn Hotel at 30800 SW Parkway Avenue is anticipated to result in the following impacts:

Trip Generation

- The project site is estimated to generate 408 net new average daily trips (proposed hotel minus existing hotel) including 30 (15 in, 15 out) in the p.m. peak hour.
- Of the total 30 net new project trips, 24 new p.m. peak hour trips are estimated to pass through the I-5/Wilsonville Road interchange area.

Study Intersection Operations

- The Wilsonville Road/Town Center Loop West, SW Parkway Avenue/Memorial Drive, and Memorial Drive/Site Driveway are anticipated to meet the City’s operating standard with an LOS of D or better for all existing and future scenarios.

Site Circulation and Safety

- Prior to occupancy, sight distance at the existing hotel access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Vehicle and Bicycle Parking

- The provided site plan shows a total of 143 parking spaces, including 37 additional shared off-site parking spaces, which meets the City of Wilsonville’s parking requirements and the estimated demand.
- The City of Wilsonville requires 24 bicycle spaces. The site plan shows a total of 12 bicycle spaces located near the front entrance. It is recommended that 12 additional spaces be provided near the front entrance or a variance to code will be required.

Appendix A – Site Plan

INTERSTATE-5

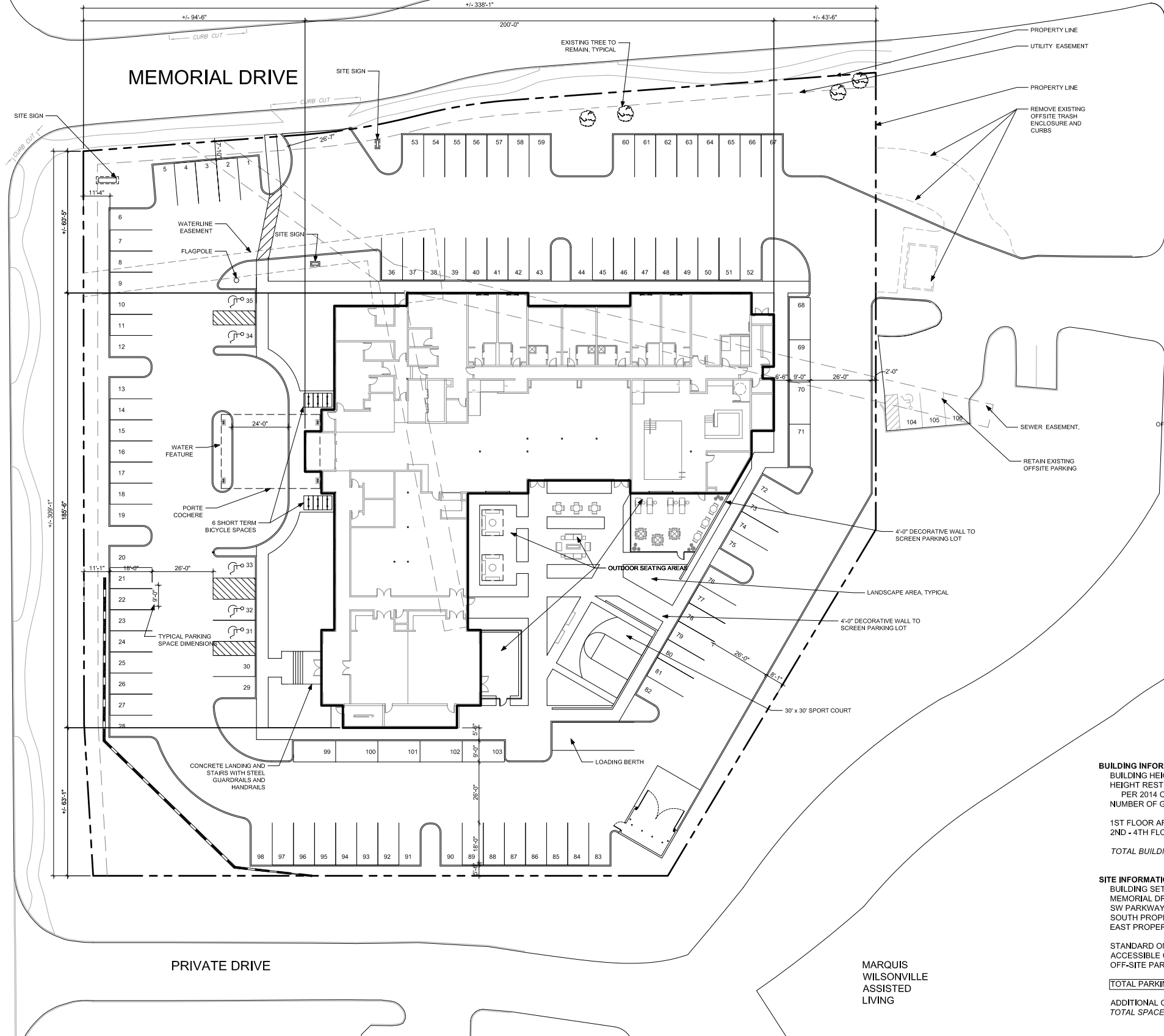
SW PARKWAY AVE

PARKER
JOHNSTONE'S
WILSONVILLE
HONDA

MEMORIAL DRIVE

PRIVATE DRIVE

MARQUIS
WILSONVILLE
ASSISTED
LIVING



BUILDING INFORMATION:
 BUILDING HEIGHT: 4 STORIES
 HEIGHT RESTRICTION: 4 STORIES OR 60'
 PER 2014 OREGON STRUCTURAL SPECIALTY CODE
 NUMBER OF GUEST ROOMS: 118

1ST FLOOR AREA: 21,120 SF
 2ND - 4TH FLOOR AREAS: 18,915 SF
 TOTAL BUILDING AREA: 77,865 SF

SITE INFORMATION:
 BUILDING SETBACK REQUIREMENTS PER WILSONVILLE CODE:
 MEMORIAL DRIVE: 30'
 SW PARKWAY AVE: 30'
 SOUTH PROPERTY LINE: 24'
 EAST PROPERTY LINE: 24'

STANDARD ON-SITE PARKING SPACES: 98
 ACCESSIBLE ON-SITE PARKING SPACES: 5
 OFF-SITE PARKING SPACES (NEAR BUILDING): 3

TOTAL PARKING SPACES NEAR BUILDING: 106 (90% x 118 UNITS)

ADDITIONAL OFF-SITE PARKING SPACES: 37
 TOTAL SPACES AVAILABLE: 143

1 SITE PLAN
 SCALE: 1" = 50'-0"



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Appendix B – Existing Peak Hour Traffic Counts

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	SW Memorial Dr
City, State	Wilsonville OR
Study ID #	
Location	45.297639 - -122.768741
Start Date	Tuesday, June 06, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:35:00 PM
PHF (15-Min Int)	0.88

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	51	4	0	21	45	0	0	0	0	0	0	19	0	32	0	55	66	0	51	64	83	0	25

Percent Heavy Vehicles																							
0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	#DIV/0!	0.0%	0.0%	1.2%	#DIV/0!	0.0%

PHV- Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM		3	0	0	2	7		0					0		2	0		
04:05:00 PM		3	0	0	0	1		0					0		1	0		
04:10:00 PM		6	0	0	2	5		0					4		0	0		36
04:15:00 PM		4	0	0	1	4		0					2		3	0		36
04:20:00 PM		4	0	0	3	6		0					0		0	0		44
04:25:00 PM		3	0	0	2	3		0					2		2	0		39
04:30:00 PM		4	0	0	1	1		0					2		1	0		34
04:35:00 PM		7	0	0	2	6		0					2		2	0		40
04:40:00 PM		7	1	0	1	4		0					0		2	0		43
04:45:00 PM		2	1	0	0	4		0					1		4	0		46
04:50:00 PM		6	0	0	2	1		0					4		1	0		41
04:55:00 PM		2	0	0	1	9		0					3		0	0		41
05:00:00 PM		3	0	0	0	2		0					1		1	0		36
05:05:00 PM		2	2	0	3	3		0					1		6	0		39
05:10:00 PM		4	0	0	3	5		0					0		6	0		42
05:15:00 PM		2	0	0	2	3		0					0		3	0		45
05:20:00 PM		3	0	0	2	4		0					4		4	0		45
05:25:00 PM		3	0	0	1	5		0					1		3	0		40
05:30:00 PM		6	0	0	3	3		0					0		0	0		42
05:35:00 PM		10	1	0	2	4		0					1		3	0		46
05:40:00 PM		5	0	0	1	0		0					3		1	0		43
05:45:00 PM		5	1	0	1	6		0					1		4	0		49
05:50:00 PM		4	1	0	2	2		0					1		0	0		38
05:55:00 PM		4	0	0	1	9		0					0		5	0		47

Bicycles on Road																	
Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM		0	0	0	0	0		0		0		0		
04:05:00 PM		0	0	0	0	0		0		0		0		
04:10:00 PM		0	0	0	0	0		0		0		0	0	
04:15:00 PM		0	0	0	0	0		0		0		0	0	
04:20:00 PM		0	0	0	0	0		0		0		0	0	
04:25:00 PM		0	0	0	0	0		0		0		0	0	
04:30:00 PM		0	0	0	0	0		0		0		0	0	
04:35:00 PM		0	0	0	0	0		0		0		0	0	
04:40:00 PM		0	0	0	0	0		0		0		0	0	
04:45:00 PM		0	0	0	0	0		0		0		0	0	
04:50:00 PM		0	0	0	0	0		0		0		0	0	
04:55:00 PM		0	0	0	0	0		0		0		0	0	0
05:00:00 PM		0	0	0	0	0		0		0		0	0	0
05:05:00 PM		0	0	0	0	0		0		0		0	0	0
05:10:00 PM		0	0	0	0	0		0		0		0	0	0
05:15:00 PM		0	0	0	0	0		0		0		0	0	0
05:20:00 PM		0	0	0	0	0		0		0		0	0	0
05:25:00 PM		0	0	0	0	0		0		0		0	0	0
05:30:00 PM		0	0	0	0	0		0		0		0	0	0
05:35:00 PM		0	0	0	0	0		0		0		0	0	0
05:40:00 PM		0	0	0	0	0		0		0		0	0	0
05:45:00 PM		0	0	0	0	0		0		0		0	0	0
05:50:00 PM		0	0	0	0	0		0		0		0	0	0
05:55:00 PM		0	0	0	0	0		0		0		0	0	0

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM		3	0	0	2	7		0					0		2	0		
04:05:00 PM		3	0	0	0	1		0					0		1	0		
04:10:00 PM		6	0	0	1	5		0					4		0	0	35	
04:15:00 PM		4	0	0	1	4		0					2		3	0	35	
04:20:00 PM		4	0	0	3	6		0					0		0	0	43	
04:25:00 PM		3	0	0	2	3		0					2		2	0	39	
04:30:00 PM		4	0	0	1	1		0					2		1	0	34	
04:35:00 PM		7	0	0	2	6		0					2		2	0	40	
04:40:00 PM		7	1	0	1	3		0					0		2	0	42	
04:45:00 PM		2	1	0	0	4		0					1		4	0	45	
04:50:00 PM		6	0	0	2	1		0					4		1	0	40	
04:55:00 PM		2	0	0	1	9		0					3		0	0	41	157
05:00:00 PM		3	0	0	0	2		0					1		1	0	36	150
05:05:00 PM		2	2	0	3	3		0					1		6	0	39	162
05:10:00 PM		4	0	0	3	5		0					0		6	0	42	164
05:15:00 PM		2	0	0	2	3		0					0		3	0	45	160
05:20:00 PM		3	0	0	2	4		0					4		4	0	45	164



KEY DATA NETWORK

05:25:00 PM	3	0	0	1	5	0	1	3	0	40	165
05:30:00 PM	6	0	0	3	3	0	0	0	0	42	168
05:35:00 PM	9	1	0	2	4	0	1	3	0	45	169
05:40:00 PM	5	0	0	1	0	0	3	1	0	42	165
05:45:00 PM	5	1	0	1	6	0	1	4	0	48	171
05:50:00 PM	3	1	0	2	2	0	1	0	0	37	166
05:55:00 PM	4	0	0	1	9	0	0	5	0	46	170

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0					0		0	0		
04:05:00 PM	0	0	0	0	0	0	0	0					0		0	0		
04:10:00 PM	0	0	0	0	1	0	0	0					0		0	0	1	
04:15:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:20:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:25:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	
04:35:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	
04:40:00 PM	0	0	0	0	0	1	0	0					0		0	0	1	
04:45:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:50:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	
04:55:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	2
05:00:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	2
05:05:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	2
05:10:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:15:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:20:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:25:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:30:00 PM	0	0	0	0	0	0	0	0					0		0	0	0	1
05:35:00 PM	1	0	0	0	0	0	0	0					0		0	0	1	2
05:40:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	1
05:45:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	1
05:50:00 PM	1	0	0	0	0	0	0	0					0		0	0	1	2
05:55:00 PM	0	0	0	0	0	0	0	0					0		0	0	1	2

Time	Pedestrians Crossing				15 Min Sum	1 HR Sum
	NB	SB	EB	WB		
04:00:00 PM	0	0	0	0		
04:05:00 PM	0	0	0	0		
04:10:00 PM	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	
04:30:00 PM	0	0	1	0	1	
04:35:00 PM	0	0	0	0	1	
04:40:00 PM	0	0	0	0	1	
04:45:00 PM	0	0	0	0	0	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0
04:55:00 PM	0	0	0	0 1
05:00:00 PM	0	0	0	0 1
05:05:00 PM	0	0	0	0 1
05:10:00 PM	0	0	1	1 2
05:15:00 PM	0	0	0	1 2
05:20:00 PM	0	0	0	1 2
05:25:00 PM	0	0	0	0 2
05:30:00 PM	0	0	0	0 1
05:35:00 PM	0	0	0	0 1
05:40:00 PM	0	0	0	0 1
05:45:00 PM	0	0	1	1 2
05:50:00 PM	0	0	0	1 2
05:55:00 PM	0	0	0	1 2

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	Quality Inn Dwy
City, State	Wilsonville OR
Study ID #	
Location	45.297696 - -122.768204
Start Date	Tuesday, June 06, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:05:00 PM
PHF (15-Min Int)	0.69

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
8	0	0	1	0	0	0	0	0	18	7	0	3	43	0	0	9	0	25	46	11	0	51	18

Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	9.1%	0.0%	0.0%	0.0%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	11	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	13	
04:20:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	16	
04:25:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	15	
04:30:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	14	
04:35:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	16	
04:40:00 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	15	
04:45:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	16	
04:50:00 PM	1	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	17	
04:55:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	16	57
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	13	56
05:05:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	7	0	0	18	67
05:10:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	0	5	0	0	23	69
05:15:00 PM	2	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	29	72
05:20:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	1	6	0	0	27	78
05:25:00 PM	1	0	0	1	0	0	0	0	0	1	0	0	0	3	0	0	24	78
05:30:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	19	77
05:35:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	1	2	0	0	16	78
05:40:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	16	79
05:45:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	19	80
05:50:00 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	16	77
05:55:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	16	79

Bicycles on Road																		
Northbound				Southbound				Eastbound				Westbound						



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				Quality Inn Dwy				Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	11	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	13	
04:20:00 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	15	
04:25:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	14	
04:30:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	13	
04:35:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	16	
04:40:00 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	15	
04:45:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	16	
04:50:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	16	
04:55:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	15	55
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	54
05:05:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	7	0	0	18	65
05:10:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	0	5	0	0	23	67
05:15:00 PM	2	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	29	70
05:20:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	1	6	0	0	27	77



KEY DATA NETWORK

05:25:00 PM	1	0	0	1	0	0	0	0	0	0	1	0	0	0	3	0	0	24	77
05:30:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	19	76
05:35:00 PM	1	0	0	0	0	0	0	0	0	2	1	0	1	2	0	0	16	77	
05:40:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	16	78	
05:45:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	19	79	
05:50:00 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	16	77	
05:55:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	16	79	

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time	Pedestrians Crossing				15 Min	1 HR
	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	0	0	0		
04:05:00 PM	0	0	0	0		
04:10:00 PM	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	
04:35:00 PM	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0	0
04:55:00 PM	0	0	0	0	0 0
05:00:00 PM	0	0	0	0	0 0
05:05:00 PM	0	0	0	0	0 0
05:10:00 PM	0	0	0	0	0 0
05:15:00 PM	0	0	0	0	0 0
05:20:00 PM	0	0	0	0	0 0
05:25:00 PM	0	0	0	0	0 0
05:30:00 PM	0	0	0	0	0 0
05:35:00 PM	0	0	0	0	0 0
05:40:00 PM	0	0	0	0	0 0
05:45:00 PM	1	0	0	0	1 1
05:50:00 PM	1	0	1	0	3 3
05:55:00 PM	0	0	0	0	3 3



KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street:	Town Center Loop West
E/W street:	Wilsonville Rd
City, State	Wilsonville OR
Study ID #	
Location	45.298037 - -122.76452
Start Date	Tuesday, June 06, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:40:00 PM
Peak 15 Min Start	05:25:00 PM
PHF (15-Min Int)	0.96

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
268	82	43	1	43	83	593	0	408	595	60	1	38	630	60	0	394	719	1064	728	182	550	1492	681

Percent Heavy Vehicles																							
1.1%	2.4%	2.3%	0.0%	0.0%	2.4%	1.0%	0.0%	1.5%	0.7%	6.7%	0.0%	0.0%	1.9%	0.0%	0.0%	1.5%	1.1%	1.3%	1.6%	3.3%	1.5%	1.4%	0.7%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	3	7	7	0	11	25

All Vehicle Volumes																		
Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	11	5	3	0	0	7	53	0	43	51	6	0	0	47	3	0		
04:05:00 PM	25	5	4	0	2	6	52	0	40	42	6	0	1	43	0	0		
04:10:00 PM	18	1	2	0	2	9	47	0	34	43	4	0	5	61	6	0	687	
04:15:00 PM	21	10	3	0	3	1	54	0	42	62	12	0	3	59	5	0	733	
04:20:00 PM	13	10	10	0	6	6	40	0	39	42	3	0	3	40	4	0	723	
04:25:00 PM	10	9	4	0	3	5	34	0	23	43	2	0	1	46	4	0	675	
04:30:00 PM	20	4	2	0	3	6	32	0	26	48	6	0	1	55	7	1	611	
04:35:00 PM	13	3	2	0	2	6	49	0	39	52	3	0	7	60	3	0	634	
04:40:00 PM	27	9	5	0	6	9	59	0	38	45	6	0	2	49	4	0	709	
04:45:00 PM	28	10	3	0	1	6	50	0	17	42	7	0	1	60	6	0	729	
04:50:00 PM	25	11	3	0	4	7	43	0	37	53	4	0	3	66	4	0	750	
04:55:00 PM	15	5	3	0	3	8	42	0	49	60	5	0	4	40	4	0	729	2800
05:00:00 PM	23	4	3	0	2	8	50	0	38	50	3	0	0	38	6	0	723	2796
05:05:00 PM	31	5	3	0	4	5	34	0	18	39	7	0	3	65	7	0	684	2791
05:10:00 PM	25	5	3	0	3	9	47	0	37	52	3	0	2	57	6	0	695	2808
05:15:00 PM	21	4	6	0	6	5	72	0	31	43	2	1	6	41	0	0	708	2771
05:20:00 PM	23	6	1	0	4	5	50	0	30	44	5	0	6	50	7	0	718	2786
05:25:00 PM	15	6	3	1	5	8	41	0	31	63	4	0	3	69	9	0	727	2860
05:30:00 PM	16	5	3	0	1	7	52	0	36	55	7	0	3	56	4	0	734	2894
05:35:00 PM	19	12	7	0	4	6	53	0	46	49	7	0	5	39	3	0	753	2905
05:40:00 PM	15	8	4	0	9	4	49	0	23	42	7	0	4	44	3	0	707	2858
05:45:00 PM	17	12	2	0	6	2	39	0	31	57	8	0	8	52	8	0	704	2869
05:50:00 PM	26	5	1	0	10	10	45	0	37	68	3	0	2	55	5	0	721	2876
05:55:00 PM	19	4	2	0	0	5	43	0	41	48	3	0	2	34	5	0	715	2844

Bicycles on Road																		
	Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:10:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
05:15:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	3
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3

Passenger vehicles and light trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				Sum	Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	11	5	3	0	0	7	53	0	43	49	4	0	0	44	3	0		
04:05:00 PM	25	5	4	0	2	6	52	0	40	40	5	0	1	40	0	0		
04:10:00 PM	17	0	2	0	2	8	46	0	34	42	3	0	5	61	6	0	668	
04:15:00 PM	21	10	3	0	3	1	54	0	42	62	12	0	3	57	5	0	719	
04:20:00 PM	13	10	10	0	6	6	40	0	38	42	3	0	3	39	4	0	713	
04:25:00 PM	9	9	4	0	3	5	33	0	23	42	2	0	1	46	4	0	668	
04:30:00 PM	20	4	2	0	3	6	32	0	25	47	6	0	1	55	7	1	604	
04:35:00 PM	13	3	2	0	2	6	49	0	39	50	3	0	7	60	3	0	627	
04:40:00 PM	25	9	5	0	6	8	58	0	38	45	5	0	2	47	4	0	698	
04:45:00 PM	28	9	3	0	1	6	50	0	17	41	6	0	1	60	6	0	717	
04:50:00 PM	25	11	3	0	4	7	43	0	37	53	3	0	3	62	4	0	735	
04:55:00 PM	15	5	3	0	3	8	42	0	48	60	5	0	4	39	4	0	719	2753
05:00:00 PM	23	4	3	0	2	8	50	0	37	50	3	0	0	38	6	0	715	2755
05:05:00 PM	31	5	3	0	4	5	34	0	18	39	7	0	3	62	7	0	678	2753
05:10:00 PM	25	5	3	0	3	8	47	0	36	51	3	0	2	56	6	0	687	2772
05:15:00 PM	20	4	5	0	6	5	72	0	31	41	2	1	6	41	0	0	697	2733
05:20:00 PM	23	6	1	0	4	5	47	0	30	44	5	0	6	49	7	0	706	2746



KEY DATA NETWORK

05:25:00 PM	15	5	3	1	5	8	40	0	29	63	3	0	3	69	9	0	714	2818
05:30:00 PM	16	5	3	0	1	7	52	0	35	55	7	0	3	56	4	0	724	2853
05:35:00 PM	19	12	7	0	4	6	52	0	46	49	7	0	5	39	3	0	746	2865
05:40:00 PM	14	8	4	0	9	4	49	0	23	41	7	0	4	44	3	0	703	2823
05:45:00 PM	16	11	2	0	6	1	38	0	31	57	7	0	8	52	8	0	696	2832
05:50:00 PM	26	5	1	0	10	10	44	0	37	68	3	0	2	54	5	0	712	2842
05:55:00 PM	19	4	2	0	0	4	42	0	39	48	3	0	2	33	5	0	703	2807

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	0	3	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0		
04:10:00 PM	1	1	0	0	0	1	1	0	0	1	1	0	0	0	0	0	19	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	14	
04:20:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	10	
04:25:00 PM	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	7	
04:30:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	7	
04:35:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7	
04:40:00 PM	2	0	0	0	0	1	1	0	0	0	1	0	0	2	0	0	11	
04:45:00 PM	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	12	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	15	
04:55:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	10	47
05:00:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8	41
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	6	38
05:10:00 PM	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	8	36
05:15:00 PM	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	11	38
05:20:00 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	12	40
05:25:00 PM	0	1	0	0	0	0	1	0	2	0	1	0	0	0	0	0	13	42
05:30:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	10	41
05:35:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	7	40
05:40:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	35
05:45:00 PM	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	8	37
05:50:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	9	34
05:55:00 PM	0	0	0	0	0	1	1	0	2	0	0	0	0	1	0	0	12	37

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	2	0	0		
04:05:00 PM	1	2	0	2		
04:10:00 PM	0	0	0	3	10	
04:15:00 PM	1	0	0	3	12	
04:20:00 PM	2	4	0	4	17	
04:25:00 PM	0	4	0	2	20	
04:30:00 PM	4	0	0	3	23	
04:35:00 PM	0	0	0	0	13	
04:40:00 PM	0	0	0	0	7	
04:45:00 PM	1	0	0	1	2	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0	2	
04:55:00 PM	4	2	0	3	11	48
05:00:00 PM	1	2	0	2	14	51
05:05:00 PM	0	0	0	1	15	47
05:10:00 PM	1	0	0	0	7	45
05:15:00 PM	0	0	0	0	2	41
05:20:00 PM	0	2	0	1	4	34
05:25:00 PM	0	0	0	2	5	30
05:30:00 PM	0	0	0	0	5	23
05:35:00 PM	0	1	0	1	4	25
05:40:00 PM	0	0	0	1	3	26
05:45:00 PM	3	0	0	4	10	31
05:50:00 PM	2	2	0	0	12	35
05:55:00 PM	1	0	0	4	16	31

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	SW Memorial Dr
City, State	Wilsonville OR
Study ID #	
Location	45.297639 - -122.768741
Start Date	Wednesday, June 07, 2017
Start Time	04:00:00 PM
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:35:00 PM
PHF (15-Min Int)	0.84

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	48	3	0	17	33	0	0	0	0	0	0	21	0	39	0	51	50	0	60	54	87	0	20

Percent Heavy Vehicles																							
0.0%	4.2%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	3.9%	2.0%	#DIV/0!	1.7%	0.0%	3.4%	#DIV/0!	5.0%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	5	0	0	3	4	0	0	1	0	0	0	32					
04:05:00 PM	0	3	1	0	0	2	0	0	0	2	0	0	34					
04:10:00 PM	0	5	0	0	2	2	0	0	1	1	0	0	46					
04:15:00 PM	0	4	0	0	4	1	0	0	3	3	0	0	43					
04:20:00 PM	0	7	0	0	4	4	0	0	1	4	0	0	40					
04:25:00 PM	0	4	0	0	0	2	0	0	2	0	0	0	34					
04:30:00 PM	0	3	1	0	1	4	0	0	0	3	0	0	31					
04:35:00 PM	0	3	0	0	2	6	0	0	2	1	0	0	30					
04:40:00 PM	0	2	0	0	1	1	0	0	1	0	0	0	24					
04:45:00 PM	0	2	0	0	2	7	0	0	0	0	0	0	139					
04:50:00 PM	0	2	0	0	2	1	0	0	1	2	0	0	33	139				
04:55:00 PM	0	3	0	0	3	3	0	0	1	4	0	0	33	139				
05:00:00 PM	0	3	0	0	2	0	0	0	3	1	0	0	31	135				
05:05:00 PM	0	5	0	0	1	1	0	0	2	3	0	0	35	139				
05:10:00 PM	0	5	0	0	0	3	0	0	2	2	0	0	40	141				
05:15:00 PM	0	3	0	0	1	5	0	0	1	6	0	0	40	133				
05:20:00 PM	0	4	0	0	1	4	0	0	1	2	0	0	44	141				
05:25:00 PM	0	5	0	0	0	4	0	0	1	6	0	0	35	136				
05:30:00 PM	0	3	0	0	0	0	0	0	2	2	0	0	41	140				
05:35:00 PM	0	8	1	0	1	3	0	0	1	4	0	0	46	156				
05:40:00 PM	0	3	1	0	3	7	0	0	1	6	0	0	48	154				
05:45:00 PM	0	1	0	0	4	2	0	0	1	1	0	0	43	159				
05:50:00 PM	0	2	0	0	3	2	0	0	3	3	0	0	38	161				
05:55:00 PM	0	6	1	0	1	2	0	0	3	3	0	0						

Bicycles on Road																	
Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0					0	0
04:05:00 PM	0	0	0	0	0	0	0	0					0	0
04:10:00 PM	0	0	0	0	0	0	0	0					0	0
04:15:00 PM	0	0	0	0	0	0	0	0					0	0
04:20:00 PM	0	0	1	0	0	0	0	0					1	0
04:25:00 PM	0	0	0	0	0	0	0	0					1	0
04:30:00 PM	0	0	0	0	0	0	0	0					1	0
04:35:00 PM	0	0	0	0	0	0	0	0					0	0
04:40:00 PM	0	0	0	0	0	0	0	0					0	0
04:45:00 PM	0	0	0	0	0	0	0	0					0	0
04:50:00 PM	0	0	0	0	0	0	0	0					0	0
04:55:00 PM	0	0	0	0	0	0	0	0					0	1
05:00:00 PM	0	0	0	0	0	0	0	0					0	1
05:05:00 PM	0	0	0	0	0	0	0	0					0	1
05:10:00 PM	0	0	0	0	0	0	0	0					0	1
05:15:00 PM	0	0	0	0	0	0	0	0					0	1
05:20:00 PM	0	0	0	0	0	0	0	0					0	0
05:25:00 PM	0	0	0	0	0	0	0	0					0	0
05:30:00 PM	0	0	0	0	0	0	0	0					0	0
05:35:00 PM	0	0	0	0	0	0	0	0					0	0
05:40:00 PM	0	0	0	0	0	0	0	0					0	0
05:45:00 PM	0	0	0	0	0	0	0	0					0	0
05:50:00 PM	0	0	0	0	0	0	0	0					0	0
05:55:00 PM	0	0	0	0	0	0	0	0					0	0

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	4	0	0	3	4	0	0					1	0	0			
04:05:00 PM	0	3	1	0	0	2	0	0					0	2	0			
04:10:00 PM	0	5	0	0	2	2	0	0					1	1	0		31	
04:15:00 PM	0	4	0	0	4	1	0	0					3	3	0		34	
04:20:00 PM	0	7	0	0	4	4	0	0					1	4	0		46	
04:25:00 PM	0	4	0	0	0	1	0	0					2	0	0		42	
04:30:00 PM	0	3	1	0	1	4	0	0					0	3	0		39	
04:35:00 PM	0	3	0	0	2	6	0	0					2	1	0		33	
04:40:00 PM	0	2	0	0	1	1	0	0					1	0	0		31	
04:45:00 PM	0	2	0	0	2	6	0	0					0	0	0		29	
04:50:00 PM	0	2	0	0	2	1	0	0					1	2	0		23	
04:55:00 PM	0	3	0	0	3	3	0	0					1	4	0		32	136
05:00:00 PM	0	3	0	0	2	0	0	0					3	1	0		31	133
05:05:00 PM	0	4	0	0	1	1	0	0					2	3	0		34	136
05:10:00 PM	0	5	0	0	0	3	0	0					2	2	0		32	137
05:15:00 PM	0	2	0	0	1	5	0	0					1	6	0		38	137
05:20:00 PM	0	4	0	0	1	4	0	0					1	2	0		39	129



KEY DATA NETWORK

05:25:00 PM	0	5	0	0	0	4	0		1	6	0	43	138
05:30:00 PM	0	3	0	0	0	0	0		2	2	0	35	133
05:35:00 PM	0	8	1	0	1	3	0		1	4	0	41	137
05:40:00 PM	0	3	1	0	3	7	0		1	5	0	45	152
05:45:00 PM	0	1	0	0	4	2	0		1	1	0	47	151
05:50:00 PM	0	2	0	0	2	2	0		3	3	0	41	155
05:55:00 PM	0	6	1	0	1	2	0		3	3	0	37	157

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound				Westbound SW Memorial Dr				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	1	0	0	0	0		0					0		0	0		
04:05:00 PM	0	0	0	0	0	0		0					0		0	0		
04:10:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:15:00 PM	0	0	0	0	0	0		0					0		0	0	0	
04:20:00 PM	0	0	0	0	0	0		0					0		0	0	0	
04:25:00 PM	0	0	0	0	0	1		0					0		0	0	1	
04:30:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:35:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:40:00 PM	0	0	0	0	0	0		0					0		0	0	0	
04:45:00 PM	0	0	0	0	0	1		0					0		0	0	1	
04:50:00 PM	0	0	0	0	0	0		0					0		0	0	1	
04:55:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:00:00 PM	0	0	0	0	0	0		0					0		0	0	0	2
05:05:00 PM	0	1	0	0	0	0		0					0		0	0	1	3
05:10:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:15:00 PM	0	1	0	0	0	0		0					0		0	0	2	4
05:20:00 PM	0	0	0	0	0	0		0					0		0	0	1	4
05:25:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:30:00 PM	0	0	0	0	0	0		0					0		0	0	0	3
05:35:00 PM	0	0	0	0	0	0		0					0		0	0	0	3
05:40:00 PM	0	0	0	0	0	0		0					0		1	0	1	4
05:45:00 PM	0	0	0	0	0	0		0					0		0	0	1	3
05:50:00 PM	0	0	0	0	1	0		0					0		0	0	2	4
05:55:00 PM	0	0	0	0	0	0		0					0		0	0	1	4

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	0		0		
04:05:00 PM	0	0		0		
04:10:00 PM	0	0		0	0	
04:15:00 PM	0	0		0	0	
04:20:00 PM	0	0		0	0	
04:25:00 PM	0	0		0	0	
04:30:00 PM	0	0		0	0	
04:35:00 PM	0	0		0	0	
04:40:00 PM	0	0		0	0	
04:45:00 PM	0	0		1	1	



KEY DATA NETWORK

04:50:00 PM	0	0	2	3
04:55:00 PM	0	0	0	3 3
05:00:00 PM	0	0	0	2 3
05:05:00 PM	0	0	0	0 3
05:10:00 PM	0	0	0	0 3
05:15:00 PM	0	0	0	0 3
05:20:00 PM	0	0	0	0 3
05:25:00 PM	0	0	0	0 3
05:30:00 PM	0	0	0	0 3
05:35:00 PM	0	0	0	0 3
05:40:00 PM	0	0	2	2 5
05:45:00 PM	0	0	0	2 4
05:50:00 PM	0	0	0	2 2
05:55:00 PM	0	0	2	2 4

Data Provided by K-D-N.com 503-594-4224	
N/S street:	SW Parkway Ave
E/W street:	Quality Inn Dwy
City, State	Wilsonville OR
Study ID #	
Location	45.297696 - -122.768204
Start Date	Wednesday, June 07, 2017
Start Time	04:00:00 PM
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:40:00 PM
PHF (15-Min Int)	0.77

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
13	0	2	1	0	0	0	0	0	13	7	0	1	49	0	0	16	0	20	50	9	0	62	15

Percent Heavy Vehicles																							
7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	0.0%	5.0%	0.0%	0.0%	0.0%	1.6%	6.7%

PHV- Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0

All Vehicle Volumes																		
Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0		
04:05:00 PM	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	4	0	0	17	
04:15:00 PM	0	0	0	0	0	0	0	0	0	2	2	0	1	4	0	0	22	
04:20:00 PM	1	0	0	0	0	0	0	0	0	1	2	0	0	4	0	0	26	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	19	
04:30:00 PM	2	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	15	
04:35:00 PM	1	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	12	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	13	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	10	
04:50:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	11	
04:55:00 PM	1	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	15	64
05:00:00 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	4	0	0	20	67
05:05:00 PM	1	0	0	1	0	0	0	0	0	0	1	0	0	4	0	0	21	70
05:10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	19	66
05:15:00 PM	3	0	0	0	0	0	0	0	0	0	1	0	1	4	0	0	21	66
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	18	62
05:25:00 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	20	67
05:30:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	17	68
05:35:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	18	68
05:40:00 PM	2	0	0	0	0	0	0	0	0	2	2	0	0	5	0	0	22	76
05:45:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	3	0	0	24	82
05:50:00 PM	1	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	28	85
05:55:00 PM	2	0	1	0	0	0	0	0	0	0	1	0	0	4	0	0	25	86

Bicycles on Road																	
Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	SW Parkway Ave				SW Parkway Ave				Quality Inn Dwy				Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

Passenger vehicles and light trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR	
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum	
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0		
04:05:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	4	1	0	0	4	0	0	16	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	1	4	0	0	21	
04:20:00 PM	1	0	0	0	0	0	0	0	0	0	1	2	0	0	4	0	0	26	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	19	
04:30:00 PM	2	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	15	
04:35:00 PM	1	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	12	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	13	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	10	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	11	
04:55:00 PM	1	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	15	63
05:00:00 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	4	0	0	20	66
05:05:00 PM	1	0	0	1	0	0	0	0	0	0	0	1	0	0	4	0	0	21	70
05:10:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	19	66
05:15:00 PM	3	0	0	0	0	0	0	0	0	0	0	1	0	1	4	0	0	21	66
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	18	62



KEY DATA NETWORK

05:25:00 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	20	67
05:30:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	17	68
05:35:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	18	68
05:40:00 PM	1	0	0	0	0	0	0	0	0	2	2	0	0	5	0	0	21	75
05:45:00 PM	0	0	0	0	0	0	0	0	0	3	1	0	0	3	0	0	22	80
05:50:00 PM	1	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	26	83
05:55:00 PM	2	0	1	0	0	0	0	0	0	0	1	0	0	4	0	0	24	84

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound Quality Inn Dwy				Westbound Quality Inn Dwy				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	0	0	0		
04:05:00 PM	0	0	0	0		
04:10:00 PM	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	
04:20:00 PM	1	0	0	0	1	
04:25:00 PM	0	1	0	0	2	
04:30:00 PM	0	0	0	0	2	
04:35:00 PM	0	0	0	0	1	
04:40:00 PM	0	0	0	0	0	
04:45:00 PM	0	0	0	0	0	



KEY DATA NETWORK

04:50:00 PM	0	0	0	0	0
04:55:00 PM	0	0	0	0	2
05:00:00 PM	0	0	0	0	2
05:05:00 PM	0	0	0	0	2
05:10:00 PM	0	0	0	0	2
05:15:00 PM	0	0	0	0	2
05:20:00 PM	0	0	0	0	1
05:25:00 PM	0	0	0	0	0
05:30:00 PM	0	0	0	0	0
05:35:00 PM	0	0	0	0	0
05:40:00 PM	0	0	0	0	0
05:45:00 PM	0	0	0	0	0
05:50:00 PM	0	0	0	0	0
05:55:00 PM	0	0	0	0	0



KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street:	Town Center Loop West
E/W street:	Wilsonville Rd
City, State	Wilsonville OR
Study ID #	
Location	45.298037 - -122.76452
Start Date	Wednesday, June 07, 2017
Start Time	04:00:00 PM
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:05:00 PM
PHF (15-Min Int)	0.92

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
264	77	29	0	33	80	574	0	394	587	65	0	31	671	56	1	370	687	1046	759	176	527	1509	650

Percent Heavy Vehicles																							
2.3%	5.2%	0.0%	0.0%	0.0%	6.3%	0.5%	0.0%	1.0%	1.4%	4.6%	0.0%	0.0%	1.5%	0.0%	0.0%	2.7%	1.2%	1.4%	1.3%	4.5%	1.5%	1.3%	1.2%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	8	7	0	8	23

All Vehicle Volumes																		
Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	16	8	3	0	8	2	43	0	46	49	7	0	0	47	4	0		
04:05:00 PM	20	3	2	0	4	0	69	0	25	45	10	0	1	43	3	0		
04:10:00 PM	21	8	4	0	1	3	39	0	32	38	9	0	3	55	3	0	674	
04:15:00 PM	18	5	4	0	3	3	47	0	26	54	4	0	2	63	5	0	675	
04:20:00 PM	26	7	0	0	5	4	45	0	38	51	4	0	1	46	7	0	684	
04:25:00 PM	21	5	5	0	1	3	41	0	30	38	6	0	5	45	3	0	671	
04:30:00 PM	20	7	3	0	6	4	47	0	35	42	2	0	0	58	4	0	665	
04:35:00 PM	14	3	4	0	3	3	38	0	25	49	2	0	5	59	4	0	640	
04:40:00 PM	21	8	6	0	2	7	56	0	43	41	6	0	5	40	0	0	672	
04:45:00 PM	13	6	4	0	0	10	53	0	26	42	8	0	2	51	5	0	664	
04:50:00 PM	18	6	4	0	2	4	56	0	43	45	5	0	2	54	7	0	701	
04:55:00 PM	9	3	4	0	5	8	49	0	34	44	3	0	2	59	5	0	691	2708
05:00:00 PM	27	2	1	0	1	6	41	0	36	49	3	0	2	53	4	0	696	2700
05:05:00 PM	29	11	5	0	1	11	48	0	25	34	2	0	4	63	2	0	685	2710
05:10:00 PM	20	9	2	0	3	3	53	0	32	67	11	0	4	61	9	0	734	2768
05:15:00 PM	23	4	0	0	5	11	58	0	33	66	9	0	1	59	3	0	781	2806
05:20:00 PM	32	7	2	0	2	6	56	0	32	40	2	0	2	45	6	0	778	2804
05:25:00 PM	24	5	2	0	4	6	40	0	35	58	10	0	3	61	2	0	754	2851
05:30:00 PM	19	5	1	0	2	5	45	0	31	45	4	0	3	53	6	0	701	2842
05:35:00 PM	21	8	4	0	4	7	33	0	37	49	8	0	0	35	3	1	679	2843
05:40:00 PM	22	9	1	0	3	7	40	0	24	38	2	0	3	65	2	0	645	2824
05:45:00 PM	20	8	3	0	1	6	55	0	32	52	6	0	5	63	7	0	684	2862
05:50:00 PM	15	3	1	0	3	4	41	0	32	55	9	0	4	59	3	0	703	2845
05:55:00 PM	21	8	4	0	5	13	52	0	23	45	1	0	3	57	5	0	724	2857

Bicycles on Road																		
	Northbound				Southbound				Eastbound				Westbound					



KEY DATA NETWORK

Time	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
04:45:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	3
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:55:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	4
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Passenger vehicles and light trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd				Sum	Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	15	8	3	0	8	2	42	0	44	47	5	0	0	46	3	0		
04:05:00 PM	20	3	2	0	4	0	68	0	25	43	10	0	1	41	3	0		
04:10:00 PM	19	7	4	0	1	3	39	0	30	37	8	0	3	54	2	0	650	
04:15:00 PM	16	5	4	0	2	3	46	0	26	54	4	0	2	59	5	0	653	
04:20:00 PM	25	7	0	0	4	4	43	0	38	51	3	0	1	46	7	0	662	
04:25:00 PM	21	5	5	0	1	3	40	0	30	37	5	0	5	43	3	0	653	
04:30:00 PM	20	7	3	0	6	4	47	0	33	41	2	0	0	57	3	0	650	
04:35:00 PM	14	3	4	0	3	3	38	0	25	49	2	0	5	57	4	0	628	
04:40:00 PM	20	7	6	0	2	6	55	0	43	40	6	0	5	40	0	0	660	
04:45:00 PM	13	6	4	0	0	10	52	0	26	41	8	0	2	50	5	0	654	
04:50:00 PM	17	5	4	0	2	4	55	0	43	43	4	0	2	52	7	0	685	
04:55:00 PM	9	3	4	0	5	8	49	0	34	44	3	0	2	59	5	0	680	2643
05:00:00 PM	27	2	1	0	1	6	41	0	35	49	3	0	2	52	4	0	686	2643
05:05:00 PM	29	11	5	0	1	11	48	0	25	34	2	0	4	62	2	0	682	2657
05:10:00 PM	20	9	2	0	3	3	53	0	32	67	11	0	4	61	9	0	731	2724
05:15:00 PM	21	4	0	0	5	10	58	0	33	64	7	0	1	59	3	0	773	2763
05:20:00 PM	31	6	2	0	2	5	56	0	32	40	2	0	2	45	6	0	768	2763



KEY DATA NETWORK

05:25:00 PM	24	4	2	0	4	6	39	0	34	57	10	0	3	61	2	0	740	2811
05:30:00 PM	18	5	1	0	2	4	45	0	31	44	4	0	3	51	6	0	689	2802
05:35:00 PM	21	8	4	0	4	7	32	0	36	49	8	0	0	35	3	1	668	2803
05:40:00 PM	22	9	1	0	3	7	40	0	24	38	2	0	3	61	2	0	634	2785
05:45:00 PM	19	7	3	0	1	4	55	0	31	50	6	0	5	63	7	0	671	2819
05:50:00 PM	15	3	1	0	3	4	40	0	32	53	8	0	4	59	3	0	688	2806
05:55:00 PM	21	8	4	0	5	13	52	0	23	44	1	0	3	56	5	0	711	2816

FHWA 4-13 -Truck/Multi-Unit/Heavy Trucks

Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Town Center Loop West				Town Center Loop West				Wilsonville Rd				Wilsonville Rd					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	1	0	0	0	0	0	1	0	2	2	2	0	0	1	1	0		
04:05:00 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	2	0	0		
04:10:00 PM	2	1	0	0	0	0	0	0	2	1	1	0	0	1	1	0	24	
04:15:00 PM	2	0	0	0	1	0	1	0	0	0	0	0	0	4	0	0	22	
04:20:00 PM	1	0	0	0	1	0	2	0	0	0	1	0	0	0	0	0	22	
04:25:00 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	2	0	0	18	
04:30:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	1	1	0	15	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	
04:40:00 PM	1	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	12	
04:45:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	10	
04:50:00 PM	1	1	0	0	0	0	1	0	0	2	1	0	0	2	0	0	16	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	65
05:00:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	10	57
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	53
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	44
05:15:00 PM	2	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	8	43
05:20:00 PM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	10	41
05:25:00 PM	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	14	40
05:30:00 PM	1	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	12	40
05:35:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	11	40
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	11	39
05:45:00 PM	1	1	0	0	0	2	0	0	1	2	0	0	0	0	0	0	13	43
05:50:00 PM	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	15	39
05:55:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	13	41

Pedestrians Crossing					15 Min	1 HR
Time	NB	SB	EB	WB	Sum	Sum
04:00:00 PM	0	1	0	0		
04:05:00 PM	0	1	0	1		
04:10:00 PM	0	1	0	1	5	
04:15:00 PM	0	0	0	0	4	
04:20:00 PM	1	0	0	0	3	
04:25:00 PM	0	2	0	1	4	
04:30:00 PM	5	2	0	0	11	
04:35:00 PM	2	1	0	2	15	
04:40:00 PM	0	0	0	0	12	
04:45:00 PM	2	0	0	3	10	



KEY DATA NETWORK

04:50:00 PM	1	0	0	0	6	
04:55:00 PM	0	0	0	0	6	27
05:00:00 PM	0	0	0	2	3	28
05:05:00 PM	1	0	0	0	3	27
05:10:00 PM	0	1	0	0	4	26
05:15:00 PM	0	1	0	0	3	27
05:20:00 PM	3	0	0	3	8	32
05:25:00 PM	1	2	0	1	11	33
05:30:00 PM	1	0	0	1	12	28
05:35:00 PM	0	0	0	1	7	24
05:40:00 PM	0	1	0	0	4	25
05:45:00 PM	1	2	0	0	5	23
05:50:00 PM	3	3	0	4	14	32
05:55:00 PM	0	0	0	0	13	32

Appendix C – Level of Service Description

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials¹. The following two sections provide interpretations of the analysis approaches.

¹ *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level-of-Service Criteria: Automobile Mode

Control Delay (s/vehicle)	LOS by Volume-to-Capacity Ratio	
	$v/c \leq 1.0$	$v/c > 1.0$
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	Approaching Unstable/Tolerable Delays: The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	Forced Flow/Excessive Delays: Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

Appendix D – Collision Data

Crash ID	Crash Date	1st Street	2nd Street	Lat	Long	Road Character	Collision Type	Crash Severity	Weather	Road Surface	Light	Cause 1
1402489	2/10/2011	Town Center Loop W	Wilsonville Road	45.30293079	-122.7658000	Intersection	Rear-end	PDO	Clear	Dry	Daylight	Following Too Close
1417347	4/15/2011	Town Center Loop W	Wilsonville Road	45.30293891	-122.7658059	Intersection	Sideswipe	PDO	Clear	Dry	Daylight	Other Improper Driving
1423240	7/9/2011	Wilsonville Road	Town Center Loop W	45.30294599	-122.7669609	Straight	Rear-end	Injury C	Clear	Dry	Daylight	Following Too Close
1428531	8/1/2011	Town Center Loop W	Wilsonville Road	45.30343056	-122.7658029	Alley	Turning	PDO	Clear	Dry	Daylight	Failed to Yield
1441120	11/4/2011	Town Center Loop W	Wilsonville Road	45.30293891	-122.7658059	Intersection	Turning	PDO	Cloudy	Dry	Dusk	Improper Turn
1441796	11/16/2011	Town Center Loop W	Wilsonville Road	45.30293891	-122.7658059	Intersection	Rear-end	PDO	Cloudy	Wet	Daylight	Following Too Close
1461395	3/5/2012	Town Center Loop W	Wilsonville Road	45.30337502	-122.7658032	Straight	Sideswipe	PDO	Clear	Unknown	Daylight	Improper Lane Change
1466602	4/7/2012	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Rear-end	PDO	Clear	Dry	Daylight	Following Too Close
1467440	4/10/2012	Wilsonville Road	Town Center Loop W	45.30293583	-122.7661889	Straight	Sideswipe	PDO	Clear	Dry	Daylight	Improper Lane Change
1471722	5/31/2012	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Turning	PDO	Clear	Dry	Daylight	Disregard Traffic Control Device
1484512	9/2/2012	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Turning	PDO	Clear	Dry	Daylight	Improper Turn
1524478	7/19/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Rear-end	Injury C	Clear	Dry	Daylight	Following Too Close
1530185	8/25/2013	Wilsonville Road	Town Center Loop W	45.30293590	-122.7661945	Straight	Sideswipe	PDO	Cloudy	Wet	Daylight	Improper Lane Change
1532922	9/21/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Turning	Injury C	Cloudy	Dry	Daylight	Disregard Traffic Signal
1536053	10/20/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Angle	Injury C	Clear	Dry	Dark - No Street Lights	Disregard Traffic Signal
1541890	11/29/2013	Town Center Loop W	Wilsonville Road	45.30293078	-122.7658059	Intersection	Rear-end	PDO	Clear	Dry	Daylight	Following Too Close
1574437	7/3/2014	Town Center Loop W	Wilsonville Road	45.30296944	-122.7602833	Intersection	Turning	Injury C	Cloudy	Dry	Daylight	Improper Turn
1575200	7/14/2014	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Rear-end	Injury C	Clear	Dry	Daylight	Failed to Avoid Vehicle Ahead
1592332	11/13/2014	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	Injury C	Sleet	Ice	Dark - No Street Lights	Other Improper Driving
1595134	11/20/2014	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	PDO	Clear	Dry	Daylight	Disregard Traffic Control Device
1597484	12/18/2014	Wilsonville Road	Town Center Loop W	45.30294167	-122.7666889	Straight	Sideswipe	PDO	Cloudy	Wet	Dark - No Street Lights	Improper Lane Change
1615104	7/17/2015	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	Injury C	Unknown	Unknown	Daylight	Failed to Yield
1622616	9/30/2015	Wilsonville Road	Town Center Loop W	45.30293611	-122.7661944	Straight	Rear-end	Injury C	Clear	Dry	Daylight	Improper Lane Change
1627495	11/28/2015	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658083	Intersection	Rear-end	Injury C	Clear	Dry	Daylight	Failed to Avoid Vehicle Ahead
1628795	12/16/2015	Town Center Loop W	Wilsonville Road	45.30293056	-122.7658056	Intersection	Turning	Injury C	Rain	Wet	Daylight	Improper Turn

Appendix E – Stage II Project List

Appendix F – HCM Analysis Results

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	401	591	62	34	650	58	266	80	36	38	82	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (prot)	3000	3490		1805	3495		1681	2600		1805	1529	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (perm)	3000	3490		1805	3495		1681	2600		1805	1529	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	418	616	65	35	677	60	277	83	38	40	85	608
RTOR Reduction (vph)	0	6	0	0	5	0	0	13	0	0	104	265
Lane Group Flow (vph)	418	675	0	35	732	0	138	247	0	40	249	75
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	19.1	52.8		4.9	38.6		15.2	15.2		19.6	19.6	19.6
Effective Green, g (s)	19.1	52.3		4.9	38.1		15.2	15.2		19.1	19.1	19.6
Actuated g/C Ratio	0.17	0.48		0.04	0.35		0.14	0.14		0.17	0.17	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	520	1659		80	1210		232	359		313	265	270
v/s Ratio Prot	c0.14	0.19		0.02	c0.21		0.08	c0.10		0.02	c0.16	0.05
v/s Ratio Perm												
v/c Ratio	0.80	0.41		0.44	0.60		0.59	0.69		0.13	0.94	0.28
Uniform Delay, d1	43.7	18.8		51.2	29.7		44.5	45.1		38.4	44.9	39.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.7		2.8	2.2		3.4	5.0		0.1	38.6	0.4
Delay (s)	52.2	19.5		54.0	32.0		47.9	50.1		38.5	83.5	39.5
Level of Service	D	B		D	C		D	D		D	F	D
Approach Delay (s)		31.9			33.0			49.3			60.6	
Approach LOS		C			C			D			E	

Intersection Summary		
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	71.3%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	36	50	4	19	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	23	41	57	5	22	44

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	147	59	0
Stage 1	59	-	-
Stage 2	88	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	850	1004	-
Stage 1	969	-	-
Stage 2	940	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	837	1004	-
Mov Capacity-2 Maneuver	837	-	-
Stage 1	969	-	-
Stage 2	926	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	937	1517	-
HCM Lane V/C Ratio	-	-	0.068	0.014	-
HCM Control Delay (s)	-	-	9.1	7.407	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.218	0.043	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	16	7	2	45	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	21	9	3	58	14	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	30
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1596
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1596
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	907	-	-	1596	-
HCM Lane V/C Ratio	0.017	-	-	0.002	-
HCM Control Delay (s)	9	-	-	7.259	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.052	-	-	0.005	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM Signalized Intersection Capacity Analysis
 1: Town Center Lp West & Wilsonville Rd

Existing PM Peak
 Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	401	591	70	37	650	58	274	81	38	38	83	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (prot)	3000	3481		1805	3495		1681	2600		1805	1529	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (perm)	3000	3481		1805	3495		1681	2600		1805	1529	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	418	616	73	39	677	60	285	84	40	40	86	608
RTOR Reduction (vph)	0	7	0	0	5	0	0	13	0	0	103	262
Lane Group Flow (vph)	418	682	0	39	732	0	142	254	0	40	251	78
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	19.0	52.2		5.1	38.3		15.5	15.5		19.7	19.7	19.7
Effective Green, g (s)	19.0	51.7		5.1	37.8		15.5	15.5		19.2	19.2	19.7
Actuated g/C Ratio	0.17	0.47		0.05	0.34		0.14	0.14		0.17	0.17	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	518	1636		83	1201		236	366		315	266	272
v/s Ratio Prot	c0.14	0.20		0.02	c0.21		0.08	c0.10		0.02	c0.16	0.05
v/s Ratio Perm												
v/c Ratio	0.81	0.42		0.47	0.61		0.60	0.69		0.13	0.94	0.29
Uniform Delay, d1	43.7	19.2		51.1	30.0		44.4	45.0		38.3	44.9	39.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.7	0.8		3.0	2.3		3.6	5.2		0.1	39.7	0.4
Delay (s)	52.4	20.0		54.2	32.3		48.0	50.2		38.5	84.6	39.5
Level of Service	D	B		D	C		D	D		D	F	D
Approach Delay (s)		32.3			33.4			49.4			61.2	
Approach LOS		C			C			D			E	

Intersection Summary		
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	71.6%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	21	49	50	4	32	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	24	56	57	5	36	44

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	176	59	0
Stage 1	59	-	-
Stage 2	117	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	818	1004	-
Stage 1	969	-	-
Stage 2	913	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	798	1004	-
Mov Capacity-2 Maneuver	798	-	-
Stage 1	969	-	-
Stage 2	891	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	932	1517	-
HCM Lane V/C Ratio	-	-	0.085	0.024	-
HCM Control Delay (s)	-	-	9.2	7.431	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.279	0.074	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	16	20	3	45	24	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	21	26	4	58	31	3

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	47	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	-	-	2	-
Pot Capacity-1 Maneuver	-	-	1573	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	-	-	1573	-
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	892	-	-	1573	-
HCM Lane V/C Ratio	0.038	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	7.294	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.118	-	-	0.007	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing + Project PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	448	605	66	48	656	62	267	80	50	42	82	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.88	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	3000	3487		1805	3492		1681	2600		1805	1527	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	3000	3487		1805	3492		1681	2600		1805	1527	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	467	630	69	50	683	65	278	83	52	44	85	644
RTOR Reduction (vph)	0	7	0	0	6	0	0	18	0	0	109	263
Lane Group Flow (vph)	467	692	0	50	742	0	139	256	0	44	259	98
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	20.5	50.2		6.8	36.5		15.5	15.5		20.0	20.0	20.0
Effective Green, g (s)	20.5	49.7		6.8	36.0		15.5	15.5		19.5	19.5	20.0
Actuated g/C Ratio	0.19	0.45		0.06	0.33		0.14	0.14		0.18	0.18	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	559	1575		111	1142		236	366		319	270	276
v/s Ratio Prot	c0.16	0.20		0.03	c0.21		0.08	c0.10		0.02	c0.17	0.06
v/s Ratio Perm												
v/c Ratio	0.84	0.44		0.45	0.65		0.59	0.70		0.14	0.96	0.36
Uniform Delay, d1	43.1	20.6		49.8	31.6		44.3	45.0		38.2	44.8	39.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.3	0.9		2.1	2.9		3.1	5.3		0.1	42.8	0.6
Delay (s)	53.4	21.5		51.9	34.5		47.4	50.3		38.3	87.6	39.9
Level of Service	D	C		D	C		D	D		D	F	D
Approach Delay (s)		34.3			35.6			49.3			62.5	
Approach LOS		C			D			D			E	

Intersection Summary		
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	73.9%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	36	50	4	21	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	23	41	57	5	24	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	152	59	0
Stage 1	59	-	-
Stage 2	93	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	844	1004	-
Stage 1	969	-	-
Stage 2	936	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	830	1004	-
Mov Capacity-2 Maneuver	830	-	-
Stage 1	969	-	-
Stage 2	921	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	934	1517	-
HCM Lane V/C Ratio	-	-	0.068	0.016	-
HCM Control Delay (s)	-	-	9.1	7.411	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.219	0.048	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	18	7	2	45	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	23	9	3	58	13	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	32
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1593
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1593
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	905	-	-	1593	-
HCM Lane V/C Ratio	0.016	-	-	0.002	-
HCM Control Delay (s)	9	-	-	7.264	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.048	-	-	0.005	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM Signalized Intersection Capacity Analysis
1: Town Center Lp West & Wilsonville Rd

Existing + Project + Stage II PM Peak
Wilsonville Hilton TIA



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↔		↔	↑↔		↔	↔↔		↔	↑↔	↔
Volume (vph)	448	605	73	50	656	62	274	81	52	42	83	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.5	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		1.00	0.95		*0.95	0.91		1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.88	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	3000	3479		1805	3492		1681	2600		1805	1527	1519
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	3000	3479		1805	3492		1681	2600		1805	1527	1519
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	467	630	76	52	683	65	285	84	54	44	86	644
RTOR Reduction (vph)	0	7	0	0	6	0	0	19	0	0	108	260
Lane Group Flow (vph)	467	699	0	52	742	0	142	262	0	44	261	101
Confl. Peds. (#/hr)	8		7	7		8	11					11
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	7%	0%	2%	0%	2%	5%	2%	0%	6%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Prot
Protected Phases	5	2		1	6		8	8		4	4	4
Permitted Phases												
Actuated Green, G (s)	20.4	49.9		6.8	36.3		15.7	15.7		20.1	20.1	20.1
Effective Green, g (s)	20.4	49.4		6.8	35.8		15.7	15.7		19.6	19.6	20.1
Actuated g/C Ratio	0.19	0.45		0.06	0.33		0.14	0.14		0.18	0.18	0.18
Clearance Time (s)	4.0	4.5		4.0	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.3		2.5	4.3		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	556	1562		111	1136		239	371		321	272	277
v/s Ratio Prot	c0.16	0.20		0.03	c0.21		0.08	c0.10		0.02	c0.17	0.07
v/s Ratio Perm												
v/c Ratio	0.84	0.45		0.47	0.65		0.59	0.71		0.14	0.96	0.37
Uniform Delay, d1	43.2	20.9		49.9	31.8		44.2	45.0		38.1	44.8	39.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.6	0.9		2.3	2.9		3.3	5.6		0.1	42.6	0.6
Delay (s)	53.8	21.8		52.1	34.7		47.5	50.6		38.2	87.4	40.0
Level of Service	D	C		D	C		D	D		D	F	D
Approach Delay (s)		34.6			35.8			49.5			62.5	
Approach LOS		C			D			D			E	

Intersection Summary		
HCM 2000 Control Delay	43.7	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.77	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	74.1%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

Intersection

Intersection Delay, s/veh 4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	21	49	50	4	34	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	4	0	6	0
Mvmt Flow	24	56	57	5	39	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	182	59	0
Stage 1	59	-	-
Stage 2	123	-	-
Follow-up Headway	4	3	-
Pot Capacity-1 Maneuver	812	1004	-
Stage 1	969	-	-
Stage 2	907	-	-
Time blocked-Platoon, %			-
Mov Capacity-1 Maneuver	791	1004	-
Mov Capacity-2 Maneuver	791	-	-
Stage 1	969	-	-
Stage 2	883	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	929	1517	-
HCM Lane V/C Ratio	-	-	0.086	0.025	-
HCM Control Delay (s)	-	-	9.2	7.435	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.28	0.078	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	18	20	3	45	24	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	8	14	0	0	8	0
Mvmt Flow	23	26	4	58	31	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	49
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	-	-	2
Pot Capacity-1 Maneuver	-	-	1571
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	-	-	1571
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9

Minor Lane / Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	890	-	-	1571	-
HCM Lane V/C Ratio	0.038	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	7.297	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.118	-	-	0.007	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined



REPUBLIC
SERVICES

May 30, 2017

Shane O'Hara
Project Architect
Carleton Hart Architecture
830 SW 10th Ave
200
Portland OR 97205

Re: Wilsonville Hotel
Waste & Recycling Enclosure

Dear Shane;

Thank you, for sending us the site plans for this development in Wilsonville.

My Company: Republic Services of Clackamas & Washington Counties has the franchise agreement to service this area with the City of Wilsonville. We will provide complete commercial waste removal and recycling services as needed on a weekly basis for this location.

My drivers should be able to safely service the enclosure as designed. Thank you for moving the opening out to the edge of the enclosure. I appreciate the added space in front. As we discussed please have the gates able to be secured in the open position about 120 degrees, if you can get it.

Thanks Shane for your help and concerns for our services prior to this project being developed.

Sincerely,

Frank J. Lonergan
Operations Manager
Republic Services Inc.

PRELIMINARY
NOT FOR
CONSTRUCTION

CARLTON HARRI ARCHITECTURE P.C.

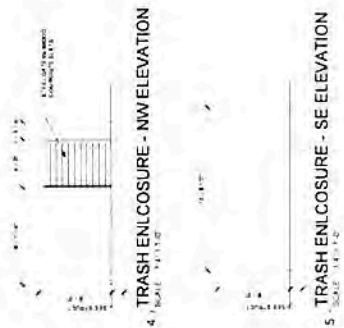
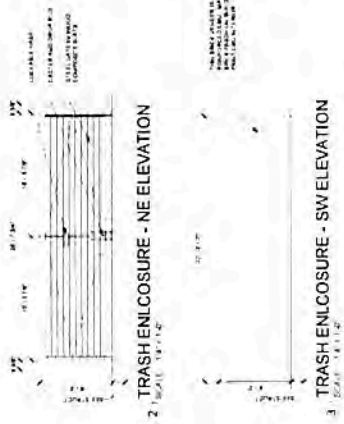
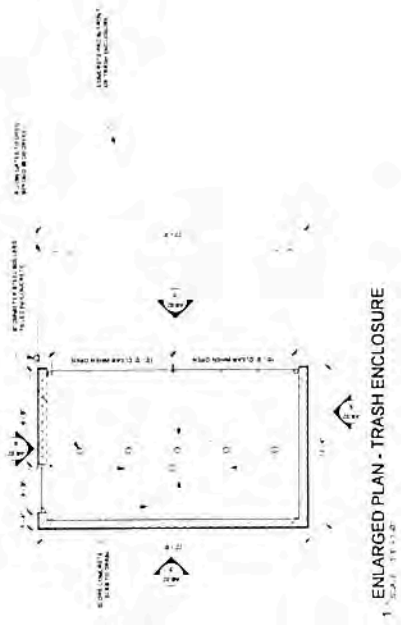


30900 SW PARKWAY AVE WILSONVILLE OREGON
WILSONVILLE HILTON GARDEN INN

BY: LISA D'AMICO
DATE: 05/30/17
PROJECT: 17-01
SHEET: 02

A8.02

Frank J. Long
5/30/17



30
12
11
7
cell

RECORDED IN CLACKAMAS COUNTY
JOHN KAUFFMAN, COUNTY CLERK

2002-022228



\$51.00

00265613200200222280060061

03/07/2002 01:51:08 PM

D-LIC Cnt=1 Stn=3 ELIZABETH

\$30.00 \$11.00 \$10.00

After recording return to:
William Blair, Inc.
421 White Horse Trail
Palm Desert, CA 92211

With a copy to:
Marquis Companies I, Inc.
C/o Steven C. Fogg
830 NE Holladay, Ste 200
Portland, OR 97232

LICENSE
(PARKING LOT AGREEMENT)

Effective Date: 1st day of November, 1998

Parties: WILLIAM BLAIR, INC., a Washington Corporation
(hereinafter referred to as "Corporation")

Recitals

A. Corporation is the owner of that certain real property located at 30800 SW Parkway Avenue, Wilsonville, Oregon.

B. Corporation is in the process of partitioning the real property into two (2) separate legal lots: Parcel A, consisting of 103,650 square feet, as legally described on the attached Exhibit A, and Parcel B, consisting of 416,630 square feet as described on the attached Exhibit B.

C. Corporation operates a hotel located upon Parcel A. Parcel B is currently unimproved. A portion of the parking lot servicing the hotel located on Parcel A is located on Parcel B. As a condition of that partition, Parcel A is to be given continual access to the parking spaces located on Parcel B.

Agreement

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is agreed as follows:

1. **Grant of License** Corporation is hereby granted the irrevocable right to use not more than Forty (40) parking spaces as may be located on Parcel B from time to time, upon the terms and conditions set forth herein. Except as specifically set forth herein, this license is irrevocable for the term hereof. The specific parking spaces or portion of the parking lot to be used by the Corporation may be redesignated from time to time by mutual agreement of Corporation and the owner of Parcel B. Such designated portion shall be adjacent to Parcel A and contiguous with the parking lot located on Parcel A. Any such designation shall be attached hereto as an Exhibit. This grant of the right to use such parking spaces includes the right of ingress and egress over such other portions of the parking lot and driveways on Parcel B as may be necessary for the normal use of such parking spaces.

2. **Term** This license shall run for a period of twenty-five (25) years commencing on November 1, 1998.



CHICAGO

CTIG 288196

3. **Consideration** As consideration for the license, Corporation shall maintain the portion of the parking lot located on Parcel B used by Corporation in the manner and in accordance with the standards that Corporation maintains for its parking lot located on Parcel A.
4. **Scope of License** Corporation shall have the non-exclusive use of such portion of the parking lot located on Parcel B for the purpose of parking of motor vehicles. Corporation shall have continual access to such portion of the parking lot located on Parcel B, 24 hours a day, seven days a week.
5. **Signs** Corporation shall have the right to install one or more signs suitable for parking lot purposes upon such portion of the parking lot located on Parcel B. Corporation shall be responsible for the expense of the installation and maintenance of such signs.
6. **Users of Parking Lot** The rights of Corporation to use the parking lot hereunder may be exercised by any person or persons so designated by Corporation, including but not limited to the employees, agents, contractors, invitees or guests of Corporation in connection with the hotel owned and operated by Corporation and located on Parcel A.
7. **Maintenance** During the term of the license, Corporation shall maintain and repair, at its sole expense, all elements of the parking lot used by Corporation. At the end of the term, the paving and stripping shall be in good condition, not in need of repair.
8. **Condemnation** Rights and duties of the parties in the event of condemnation are as follows: If during the term of this license, the whole of the licensed premises shall be taken or condemned by any competent authority for any public or quasi-public use or purpose, this license shall cease and terminate as of the date on which title shall vest in the authority. Corporation, as the owner of Parcel A, shall not be entitled to participate in the condemnation award.
9. **Other Obligations** Corporation, as the owner of Parcel A, shall not be responsible to pay real property taxes or assessments, if any, upon the portion of Parcel B used as a parking lot under the terms of this license.
10. **Waiver of Subrogation Rights** The owner of each parcel of real property shall release the other, and the agents, employees and successors of such other party, from all claims, demands and liabilities arising from unintentional acts or omissions of the other party which result in loss for which the party sustaining such loss is indemnified under a policy or policies of insurance.
11. **Binding Effect** All of the covenants, agreements, conditions and terms contained in this license shall be binding upon, apply and inure to the benefit of, the successors and assigns of the respective parties hereto. However, nothing in this paragraph shall be construed as modifying in any way any restrictions on assignment provided in this license.
12. **Waiver** No Waiver of any right arising out of a breach of any covenant, term or condition of this license shall be a waiver of any right arising out of any other or subsequent breach of the same or any other covenant, term or condition or a waiver of the covenant, term or condition itself.
13. **Integration** This license constitutes a final and complete statement of the agreement between the parties and fully supercedes all prior agreements or negotiations, written or oral.

2

14. **Legal Proceedings** In the event that any legal proceeding is commenced for the purpose of interpreting or enforcing any provision of this license, the prevailing party in such proceeding shall be entitled to recover a reasonable attorney's fee in such proceeding, or any appeal thereof, to be set by the court without the necessity of hearing testimony or receiving evidence, in addition to the costs and disbursements allowed by law.

DATED this ____ day of ____, 20 ____

WILLIAM BLAIR, INC.,
a Washington corporation

By: _____

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Riverside } ss.

On 2/25/02, before me, Jonathan A. Samarin,
Date Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared William Blair
Name(s) of Signer(s)

- personally known to me
- proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



WITNESS my hand and official seal.

Jonathan A. Samarin
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Parking Lot Agreement

Document Date: 11/1/98 Number of Pages: 3

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here



5

Exhibit A
Legal Description for Parcel A

A portion of the NW ¼ of the SW ¼ of Sec 23, TWP. 3S., RNG. 1W., W.M.

Parcel 1, PARTITION PLAT 1999-017, in the City of Wilsonville,
County of Clackamas and State of Oregon.

Exhibit B
Legal Description for Parcel B

A portion of the NW ¼ of the SW ¼ of Sec 23, TWP. 3S., RNG. 1W., W.M.

Parcel 2, PARTITION PLAT 1999-017, in the City of Wilsonville,
County of Clackamas and State of Oregon.

(6)

AFTER RECORDING RETURN TO:

Jordan Schrader Ramis PC
PO Box 230669
Portland OR 97281
(46940-37269 - KMB)

Clackamas County Official Records **2008-049904**
 Sherry Hall, County Clerk

 \$61.00
 01231118200800499040070078 07/14/2008 10:16:10 AM

D-LIC Cnt=1 Stn=6 KARLYNWUN
 \$35.00 \$16.00 \$10.00

This space is reserved for recorder's use.

**Extension of License
(Parking Lot Agreement)**

Effective Date: June 18, 2008.

Parties: William Blair, Inc., an Oregon corporation ("Blair")

Wilsonville LTC Properties, LLC, an Oregon
limited liability company ("Wilsonville")

RECITALS

A. Blair is the owner of that certain real property located at 30800 SW Parkway Avenue, Wilsonville, Oregon, as legally described on the attached Exhibit A ("Parcel A").

B. Effective November 1, 1998, pursuant to the terms of a License (Parking Lot Agreement) (the "License Agreement"), Blair was granted a license to use not more than forty (40) parking spaces as may be located from time to time on the real property legally described on the attached Exhibit B ("Parcel B").

C. The License Agreement was recorded in Clackamas County on March 7, 2002 as instrument number 2002-022228.

D. Blair and Wilsonville, the owner of Parcel B, desire to extend the term of the License Agreement.

Security Title Guaranty 20010668-010

70

AGREEMENT

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the parties agree as follows:

1. Term. The term of the License Agreement is hereby extended and shall expire on April 30, 2058; provided however, that the License Agreement shall automatically terminate in the event of the foreclosure by the U.S. Department of Housing and Urban Development of its deed of trust covering Parcel B or the transfer of title to Parcel B by deed in lieu of foreclosure.

2. Full Force and Effect. Except as specifically amended by this Extension of License ("Extension"), all terms, conditions, duties, rights, and obligations set forth in the License Agreement remain unchanged and in full force and effect. Any inconsistency between the terms of this Extension and the License Agreement shall be governed by this Extension.

IN WITNESS WHEREOF, the parties have executed this Extension effective June 18, 2008.

BLAIR

WILSONVILLE

William Blair, Inc.,
an Oregon corporation

Wilsonville LTC Properties, LLC, an
Oregon limited liability company

By: William Blair
William Blair, President

By: _____
Name: _____
Its: _____

[Acknowledgements follow on next page]

2

AGREEMENT

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the parties agree as follows:

1. Term. The term of the License Agreement is hereby extended and shall expire on April 30, 2058; provided however, that the License Agreement shall automatically terminate in the event of the foreclosure by the U.S. Department of Housing and Urban Development of its deed of trust covering Parcel B or the transfer of title to Parcel B by deed in lieu of foreclosure.

2. Full Force and Effect. Except as specifically amended by this Extension of License ("Extension"), all terms, conditions, duties, rights, and obligations set forth in the License Agreement remain unchanged and in full force and effect. Any inconsistency between the terms of this Extension and the License Agreement shall be governed by this Extension.

IN WITNESS WHEREOF, the parties have executed this Extension effective May 1, 2008.

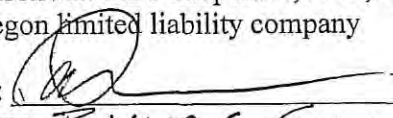
BLAIR

William Blair, Inc.,
an Oregon corporation

By: _____
William Blair, President

WILSONVILLE

Wilsonville LTC Properties, LLC, an
Oregon limited liability company

By: 
Name: Philip G. Fogg Jr
Its: President/CEO

[Acknowledgements follow on next page]

3

ACKNOWLEDGEMENTS

STATE OF CALIFORNIA)
)ss.
County of _____)

On _____, before me, _____, a Notary Public, personally appeared William Blair and personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same in his capacity as President of William Blair, Inc., and that by his signature on the instrument, the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public in and for said County and State
My Commission Expires: _____

STATE OF OREGON)
)ss.
County of Clackamas)

On 6/18/08, before me, Christine Huston, a Notary Public, personally appeared Phillip G. Fogg and personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same in his capacity as Manager of Wilsonville LTC Properties, LLC, and that by his signature on the instrument, the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Christine Huston

Notary Public in and for said County and State
My Commission Expires: 2/5/12



EXHIBIT A
Legal Description for Parcel A

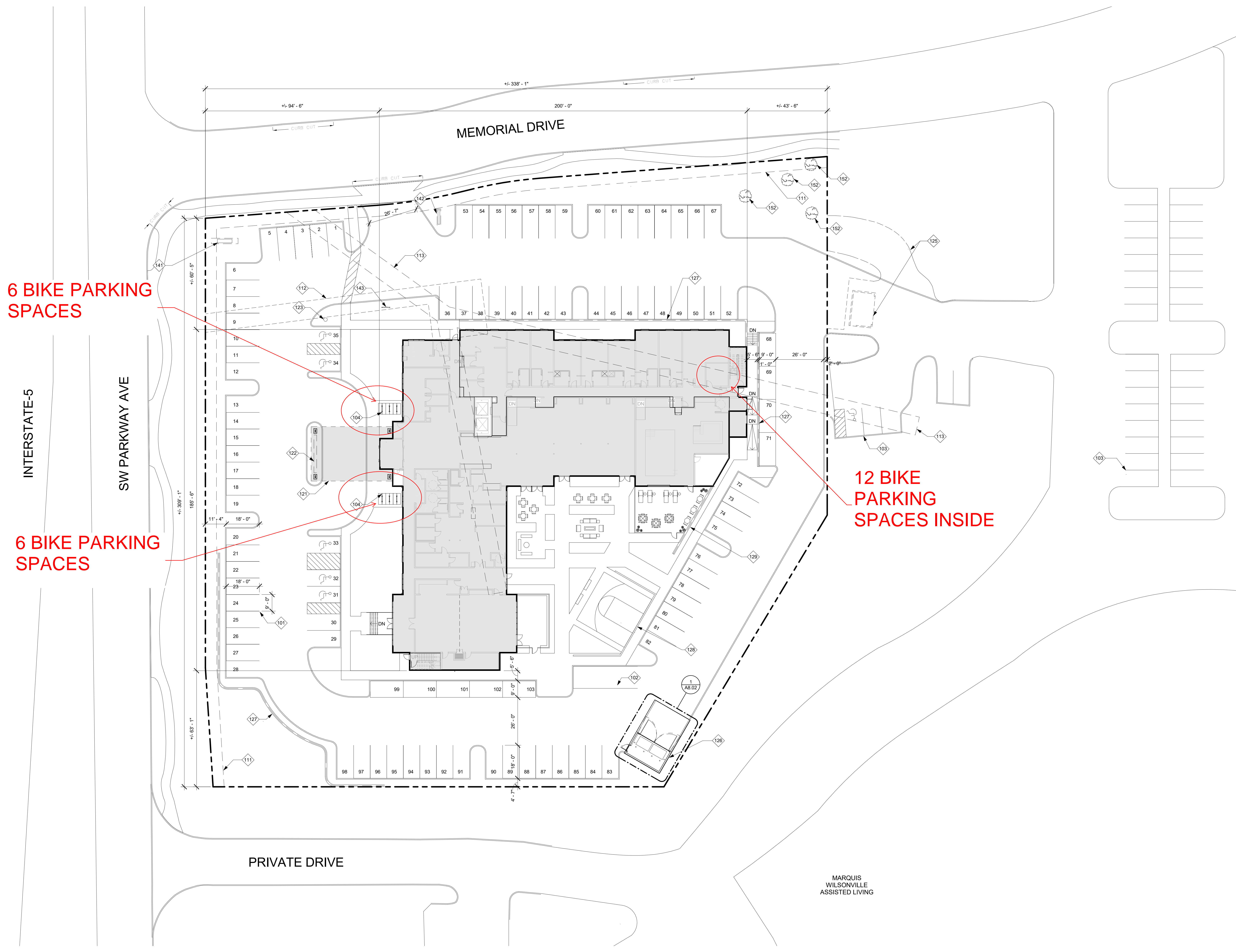
Parcel 1, PARTITION PLAT 1999-017, in the City of Wilsonville, County of Clackamas and State of Oregon

0

EXHIBIT B
Legal Description for Parcel B

Parcels 3 and 4, PARTITION PLAT 2003-07, in the City of Wilsonville, County of Clackamas and State of Oregon (formerly described as Parcel 2, PARTITION PLAT 1999-017, in the City of Wilsonville, County of Clackamas and State of Oregon.)

7



6 BIKE PARKING SPACES

6 BIKE PARKING SPACES

12 BIKE PARKING SPACES INSIDE

- GENERAL NOTES:**
- A SEE G1.01 FOR GENERAL SITE INFORMATION INCLUDING, PARKING COUNTS
 - B SEE CIVIL, LANDSCAPE, ELECTRICAL, MECHANICAL, PLUMBING FOR ADDITIONAL WORK NOT INDICATED ON THIS DRAWING.
 - C SLOPE ALL PAVING 1/4" PER FOOT MIN. TO DRAIN WALKWAYS TO MAINTAIN SLOPE NO GREATER THAN 1:20 IN THE PRIMARY DIRECTION OF TRAVEL AND 1:50 PERPENDICULAR TO THE PRIMARY DIRECTION OF TRAVEL.
 - D SLOPE ALL LANDSCAPED AREA 1/2" PER FOOT MIN.
 - E SLOPE ALL GRADE WITHIN 5'-0" OF THE BUILDING AWAY FROM THE FOUNDATION

- KEYNOTES:**
- 101 TYP. PARKING SPACE DIMENSIONS
 - 102 LOADING BERTH
 - 103 EXISTING OFFSITE SHARED PARKING. SHARED PARKING AGREEMENT W/ ADJACENT OWNER ALLOWS FOR USE OF 40 ADDITIONAL SPACES
 - 104 (6) SHORT TERM BICYCLE SPACES
 - 111 UTILITY EASEMENT ALONG NORTH AND WEST PROPERTY LINES
 - 112 WATERLINE EASEMENT
 - 113 SEWER EASEMENT
 - 121 PORTE COCHERE - ABOVE
 - 122 WATER FEATURE
 - 123 FLAGPOLE WITH UPLIGHTING - SEE LANDSCAPE & ELECTRICAL
 - 125 REMOVE EXISTING OFFSITE TRASH ENCLOSURE AND CURBS
 - 126 NEW TRASH AND RECYCLING ENCLOSURE
 - 127 RETAINING WALL W/ GUARDRAIL - SEE CIVIL
 - 128 30x30' SPORT COURT FENCED ON THREE SIDES
 - 129 4'-0" DECORATIVE WALL TO SCREEN PARKING LOT
 - 141 SITE SIGN 1 - SEE 3/A8.01
 - 142 SITE SIGN 2 - SEE 3/A8.01
 - 143 SITE SIGN 3 - SEE 3/A8.01
 - 152 EXISTING TREE TO REMAIN. TYP. SEE LANDSCAPE FOR NEW PLANTINGS.

- LEGEND:**
- PROPERTY LINE

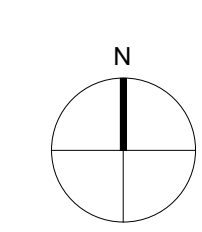
PRELIMINARY
NOT FOR
CONSTRUCTION

CAULEY HART ARCHITECTURE P.C.
 500 SW 243RD AVENUE #200
 WILSONVILLE, OREGON 97150
 WWW.CAULEYHARTARCHITECT.COM

WILSONVILLE HILTON GARDEN INN
 30800 SW PARKWAY AVE. WILSONVILLE, OREGON
 SITE DEVELOPMENT AND DESIGN REVIEW

SITE PLAN
 PROJECT NO. 16027
 06.23.2017

REVISIONS:





GENERAL NOTES:

A DIMENSIONS ARE TO GRIDLINE OR FACE OF STUD, UNLESS OTHERWISE NOTED.

B SEE G1.01 FOR BUILDING INFORMATION INCLUDING NO. OF GUESTROOMS PER FLOOR AND GROSS BUILDING AREA.

KEYNOTES:

201 LINEN CHUTE LOCATED INSIDE 2-HOUR RATED SHAFT
 202 OUTLINE OF BUILDING ABOVE
 203 PORTE COCHERE - SEE SITE PLAN & ELEVATIONS
 207 DAYLIGHT INTERNAL ROOF DRAINS @ 36" A.F.F.
 222 STRUCTURAL POST, TYP.

LEGEND:

- Common Space
- Guest Rooms
- Back of House
- Circulation
- Vertical Circulation

12 BIKE
PARKING
SPACES
INSIDE

STAIR 1
S101

STAIR 2
S102

REVISIONS:

PRELIMINARY
NOT FOR
CONSTRUCTION

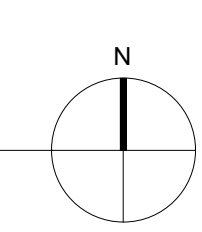
CARLETON HART ARCHITECTURE P.C.
 503 243 2252
 www.carletonhart.com

WILSONVILLE HILTON GARDEN INN
 30800 SW PARKWAY AVE. WILSONVILLE, OREGON
 HILTON DESIGN DEVELOPMENT PLANS

FLOOR PLAN - LEVEL 1
 PROJECT NO. 16027
 06.23.2017

1 LEVEL 1
 SCALE: 1/8" = 1'-0"

A2.01



WILSONVILLE HILTON GARDEN INN

30800 SW PARKWAY AVE. WILSONVILLE, OREGON

PROJECT TEAM:

OWNER

RR HOTELS POTLAND LLC
15786 SW UPPER BOONES FERRY RD
PORTLAND, OREGON 97035
DAVE KIMMEL, PM
(503) 329-5399

ARCHITECT

CARLETON HART ARCHITECTURE PC
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PORTLAND, OREGON 97205
COREY MORRIS
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GENERAL CONTRACTOR

TBD

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PHONE

LANDSCAPE ARCHITECT

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5229 NE MLK BLVD, SUITE 101
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BRYAN BAILEY
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CIVIL ENGINEER

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PORTLAND, OREGON 97214
DAVE HUMBER
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STRUCTURAL ENGINEER

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ED QUESENBERRY
(503) 636-8388

MECHANICAL ENGINEER

SYSTEM DESIGN CONSULTANTS
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PLUMBING ENGINEER

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ELECTRICAL ENGINEER

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GEOTECHNICAL ENGINEER

CARLSON GEOTECHNICAL
P.O. BOX 230997
TIGARD, OREGON 97281
JEFF QUINN, BRAD WILCOX
(503) 684-3460



SHEET INDEX:

Sheet Number	Sheet Name
GENERAL G1.01	COVER SHEET
CIVIL C1.00 C2.00 C3.00	OVERALL GRADING PLAN OVERALL LAYOUT AND PAVING PLAN OVERALL UTILITY PLAN
LANDSCAPE L1.01 L2.01 L3.01	TREE PLAN LANDSCAPE PLAN CONCEPTUAL IRRIGATION PLAN
ARCHITECTURAL A1.01	SITE PLAN
A4.01 A4.02 A4.03	EXTERIOR ELEVATIONS EXTERIOR ELEVATIONS BUILDING RENDERINGS
A8.01 A8.02	COMPREHENSIVE SIGNAGE PLAN REFUSE STORAGE ENCLOSURE
ELECTRICAL E1.00	SITE PHOTOMETRIC PLAN

PROJECT DESCRIPTION:

4-STORY HOTEL DEVELOPMENT CONSISTING OF GUEST ROOMS ON ALL FLOORS AND HOTEL AMENITIES ON THE GROUND FLOOR. DEMOLITION OF EXISTING BUILDINGS AND MAJOR SITE IMPROVEMENTS ARE ALSO INCLUDED IN THE PROJECT.

SITE INFORMATION:

ADDRESS:	30800 SW PARKWAY AVENUE WILSONVILLE, OR 97070	
TAX LOT:	31W24CB10201	
ZONING:	PDC - PLANNED DEVELOPMENT COMMERCIAL	
SITE AREA:	103,416 SF / 2.37 ACRES	
LANDSCAPE AREA:	22,286 SF (22%)	
SET BACK REQUIREMENTS:	REQUIRED	PROPOSED
SW PARKWAY (WEST)	30'	94.5'
MEMORIAL DRIVE (NORTH)	30'	60.5'
EAST	24'	43.5'
SOUTH	24'	63'
VEHICLE & BICYCLE PARKING REQUIREMENTS:	REQUIRED	PROPOSED
STANDARD VEHICLE	73	98
ACCESSIBLE VEHICLE	5	5
OFF SITE VEHICLE	0	40
TOTAL	78	143 (103 ON SITE)
SHORT-TERM BICYCLE	12	12
LONG-TERM BICYCLE	12	12

BUILDING INFORMATION:

HEIGHT LIMITATIONS: 60' (4 STORIES) PER 2014 OSSC
35' PER CITY OF WILSONVILLE ZONING
PROPOSED BLDG HEIGHT: 51' (4 STORIES) (58' @ STAIR PENTHOUSE)

BUILDING AREAS:
1ST FLOOR 21,134 SF
2ND-4TH FLOORS 19,065 SF
STAIR PENTHOUSE 469 SF
TOTAL BUILDING AREA 78,798 SF

GUEST ROOM SUMMARY:	LEVEL				TOTAL
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	
DOUBLE QUEEN	4	12	12	12	40
DOUBLE QUEEN ACCESSIBLE	0	1	1	1	3
KING	3	17	17	17	54
KING ACCESSIBLE	0	1	1	1	3
PREMIUM KING*	0	5	5	5	15
PREMIUM KING ACCESSIBLE*	0	0	0	1	1
KING SUITE	0	1	1	0	2
TOTAL GUESTROOMS	7	37	37	37	118

*TOTAL PREMIUM KING = 16 (14%)
GROSS BUILDING AREA PER KEY: 668 SF
MEETING ROOM AREA PER KEY: 16 SF

VICINITY MAP:



SITE MAP:



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WILSONVILLE HILTON GARDEN INN
30800 SW PARKWAY AVE. WILSONVILLE, OREGON
SITE DEVELOPMENT AND DESIGN REVIEW



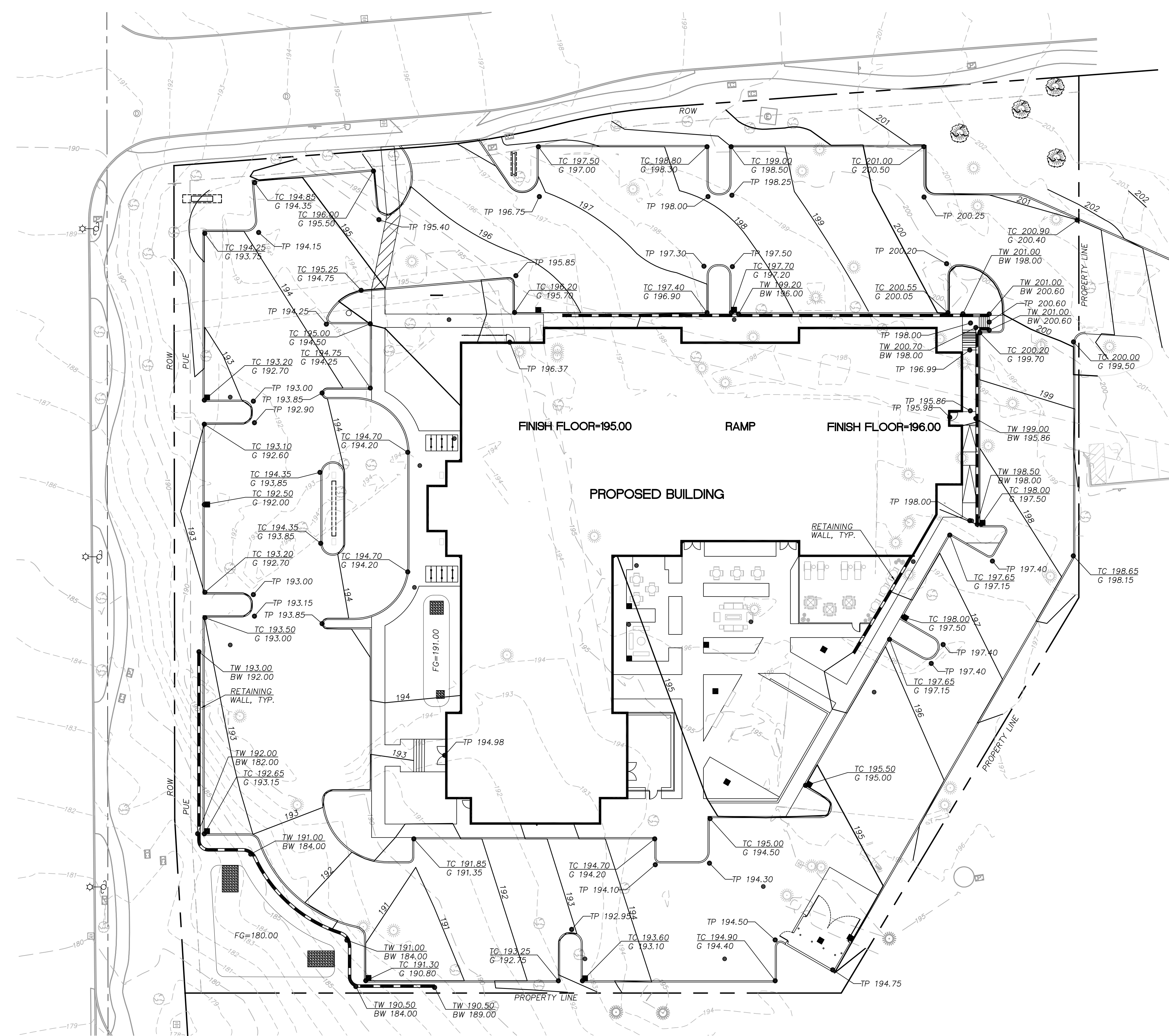
COVER SHEET

PROJECT NO.
16027

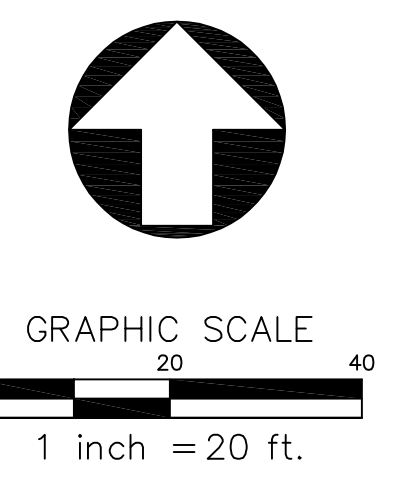
06.23.2017

REVISIONS:

G1.01

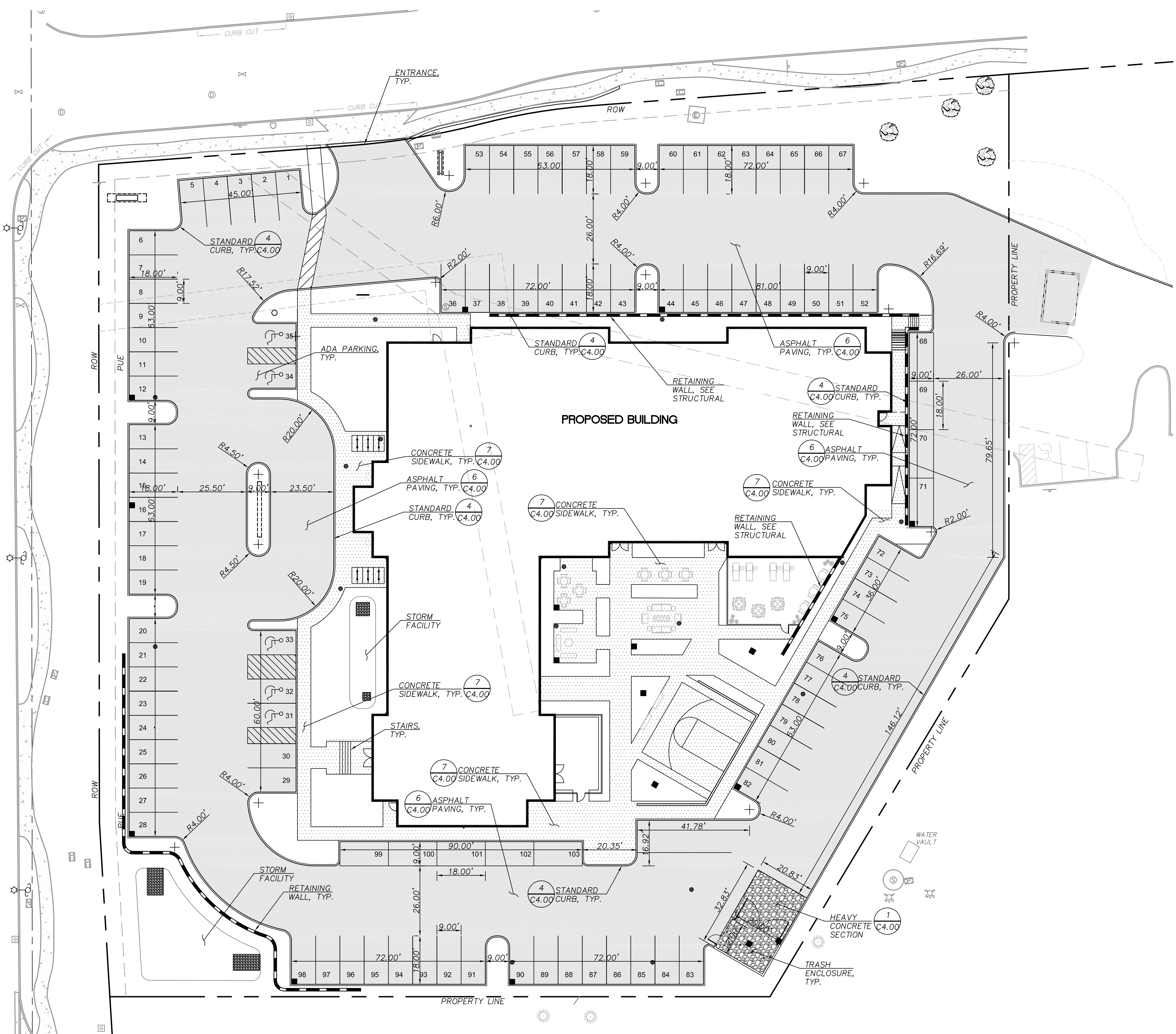


SHEET LEGEND	
ITEM	DESCRIPTION
X.X%	SLOPE ARROW
TP	TOP OF PAVEMENT
TC	TOP OF CURB
G	GUTTER
TW	TOP OF WALL
BW	BOTTOM OF WALL (@ GRADE)
- - - 195 - - -	EXISTING CONTOUR
- - - 192 - - -	PROPOSED MINOR CONTOUR
- - - 195 - - -	PROPOSED MAJOR CONTOUR
[Symbol]	SILT FENCE
[Symbol]	FILTER FABRIC INLET PROTECTION
[Symbol]	RETAINING WALL, TYP.



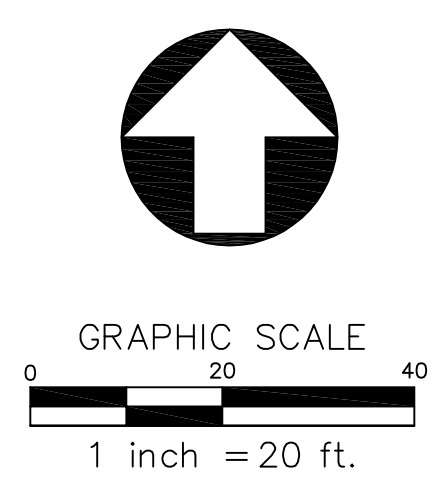
OVERALL GRADING PLAN
 1"=20'

OVERALL GRADING PLAN
 PROJ NO.
 16027
 06.23.2017

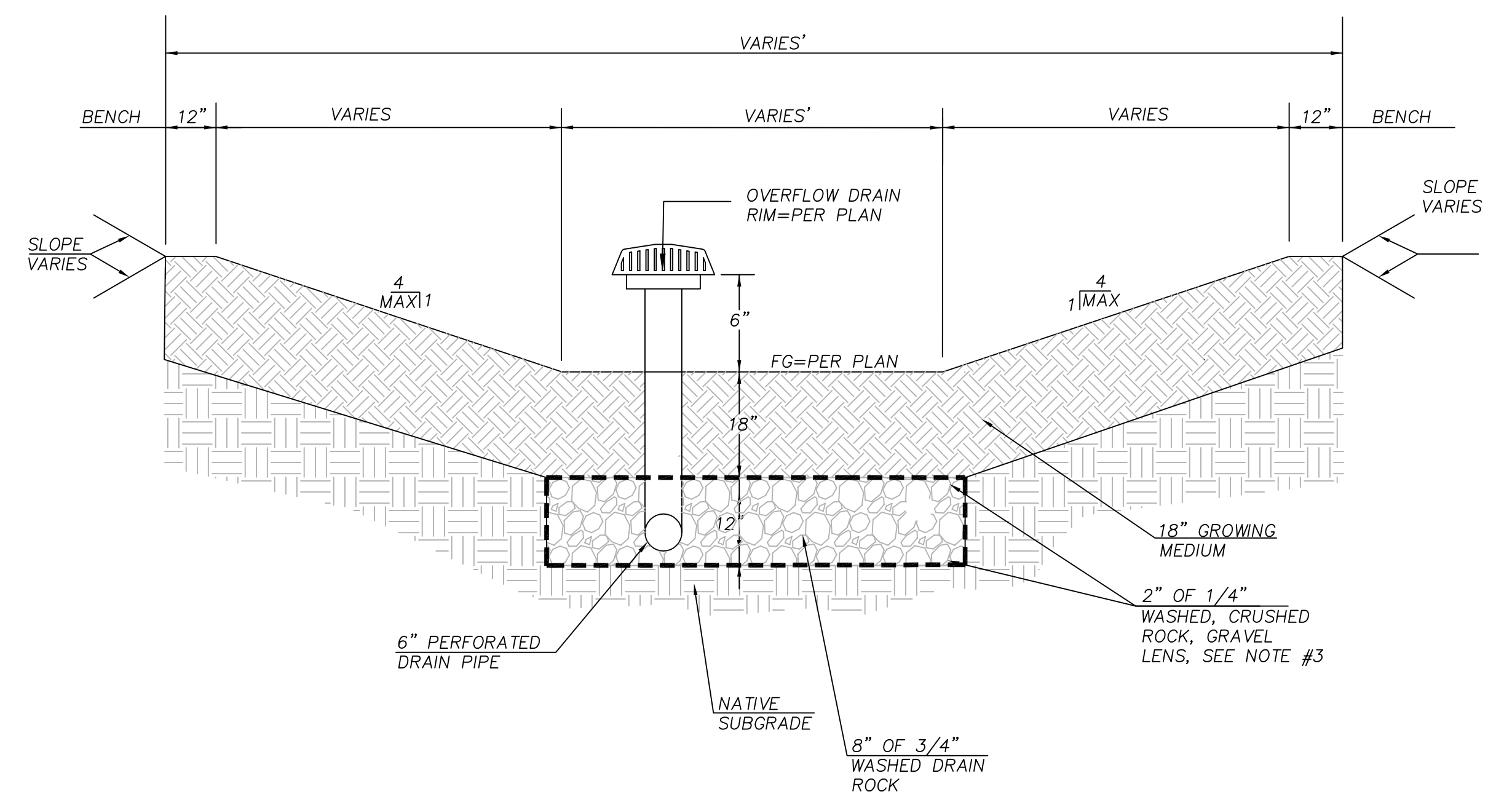


ITEM	DESCRIPTION
	ASPHALT PAVEMENT (STANDARD)
	CONCRETE SIDEWALK
	CONCRETE (HEAVY)
	STANDARD CURB
	RETAINING WALL

OVERALL LAYOUT AND PAVING PLAN
 1" = 20'

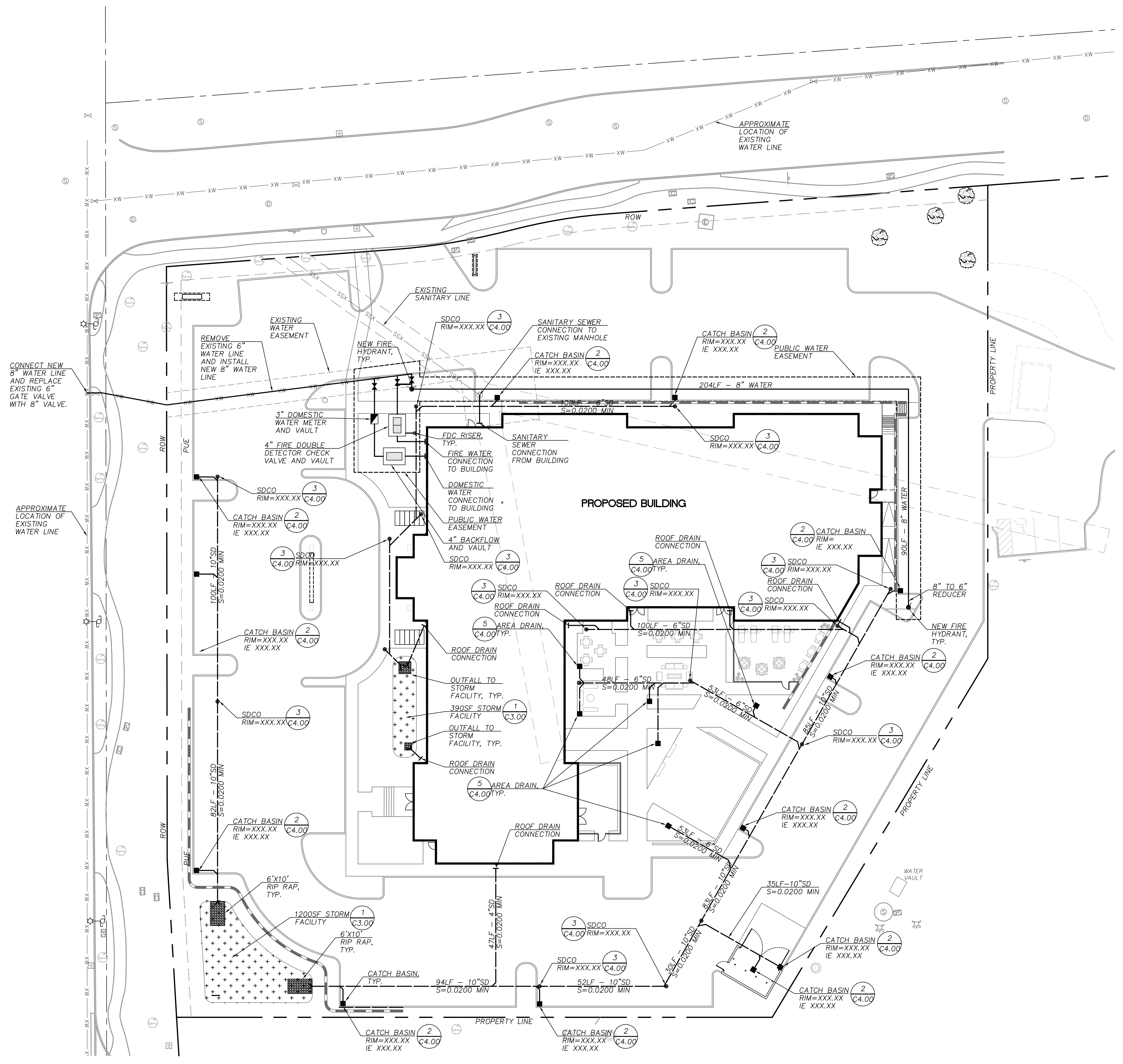
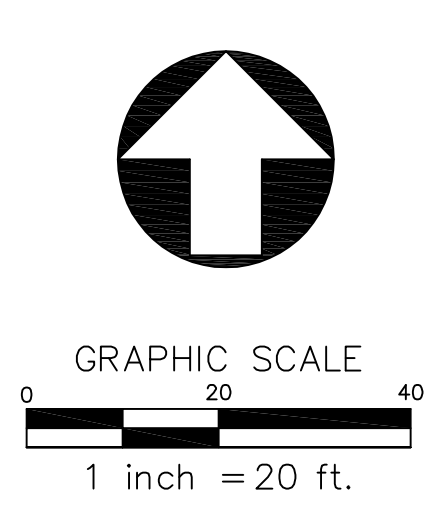


SHEET LEGEND	
ITEM	DESCRIPTION
SD	STORM
SS	SANITARY
—	DOMESTIC WATER
•	CLEAN OUT
■	AREA DRAIN/CATCH BASIN
◻	WATER METER
◻	WATER/FIRE WATER VAULT



- NOTES:
- GROWING MEDIUM SHALL BE A SAND/LOAM/COMPOST 3-WAY MIX PER APPENDIX F OF THE PORTLAND STORMWATER MANAGEMENT MANUAL.
 - FILTER FABRIC CAN BE USED IN PLACE OF THE GRAVEL LENS. IF FILTER FABRIC IS USED, THE ENTIRE ROCK SECTION SHALL BE WRAPPED WITH THE FILTER FABRIC AND THE 8" OF DRAIN ROCK SHALL BE INCREASED TO 12".

1 VEGETATED STORMWATER BASIN
NTS

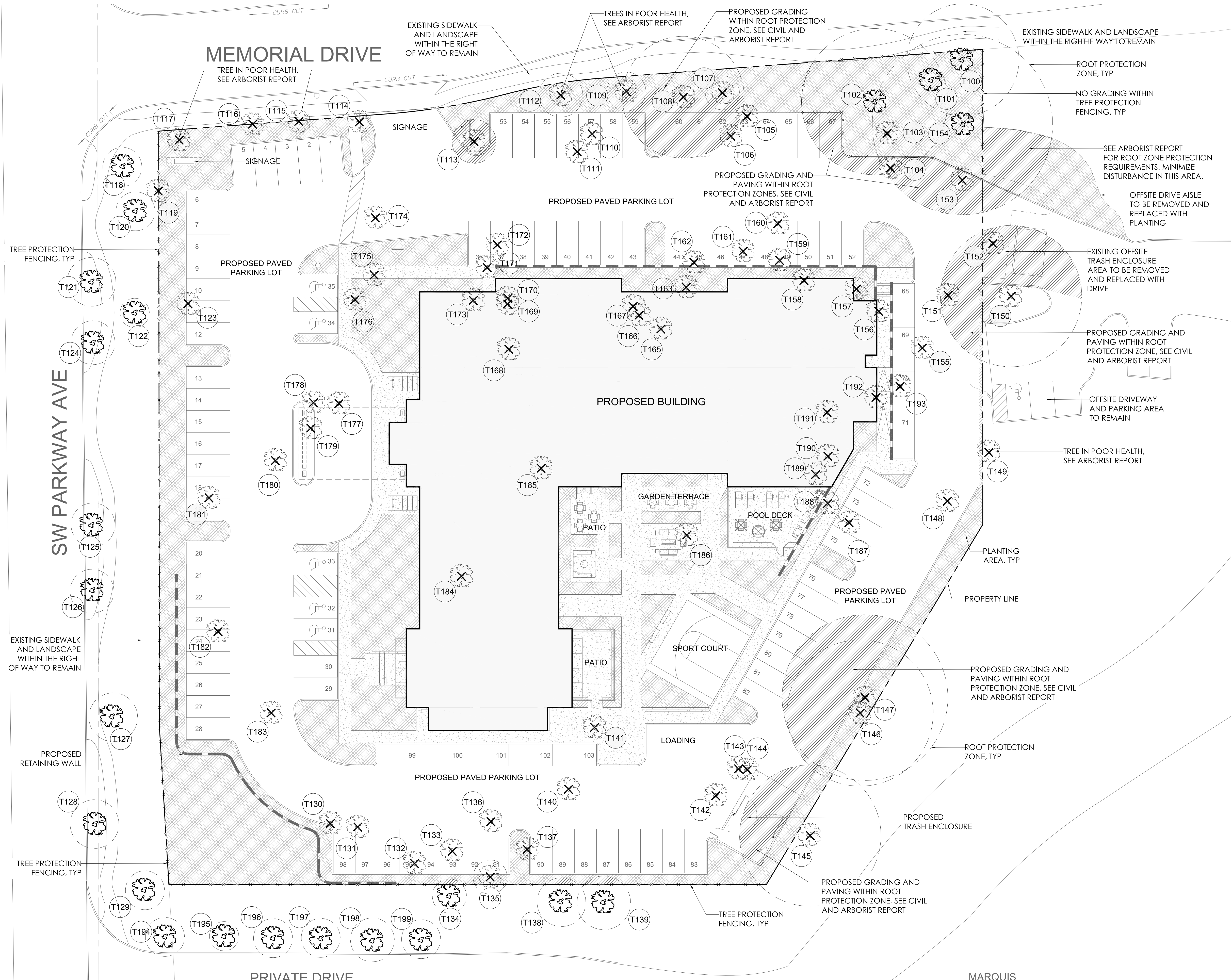


OVERALL UTILITY PLAN
1"=20'



TREE TABLE SCHEDULE

TREE NO.	DBH	CANOPY	COMMON NAME	BOTANICAL NAME / CONDITION	TREE NO.	DBH	CANOPY	COMMON NAME	BOTANICAL NAME / CONDITION	TREE NO.	DBH	CANOPY	COMMON NAME	BOTANICAL NAME / CONDITION	TREE NO.	DBH	CANOPY	COMMON NAME	BOTANICAL NAME / CONDITION
T100	19"	23FT	Douglas Fir	Pseudotsuga menziesii / Good	T125	9"	10FT	Pin Oak	Quercus palustris / Good	T150	29"	17FT	Douglas Fir	Pseudotsuga menziesii / Good	T175	10"	6FT	Ornamental Cherry	Prunus sp. / Poor, Topped
T101	37"	28FT	Douglas Fir	Pseudotsuga menziesii / Good	T126	9"	10FT	Pin Oak	Quercus palustris / Good	T151	22"	20FT	Douglas Fir	Pseudotsuga menziesii / Good	T176	12"	8FT	Ornamental Cherry	Prunus sp. / Poor, Topped
T102	30"	27FT	Douglas Fir	Pseudotsuga menziesii / Good	T127	10"	13FT	Pin Oak	Quercus palustris / Good	T152	14"	12FT	Ornamental Cherry	Prunus sp. / Poor, Topped	T177	17"	10FT	Ornamental Cherry	Prunus sp. / Poor, Topped
T103	23"	22FT	Douglas Fir	Pseudotsuga menziesii / Good	T128	10"	10FT	Pin Oak	Quercus palustris / Good	T153	35"	22FT	Douglas Fir	Pseudotsuga menziesii / Good	T178	14"	10FT	Ornamental Cherry	Prunus sp. / Poor, Topped
T104	22"	16FT	Douglas Fir	Pseudotsuga menziesii / Good	T129	8"	8FT	Pin Oak	Quercus palustris / Fair, Over pruned	T154	37"	18FT	Douglas Fir	Pseudotsuga menziesii / Good	T179	15"	5FT	Ornamental Cherry	Prunus sp. / Poor, Topped
T105	33"	19FT	Douglas Fir	Pseudotsuga menziesii / Good	T130	12"	9FT	Douglas Fir	Pseudotsuga menziesii / Fair, Over pruned	T155	36"	16FT	Douglas Fir	Pseudotsuga menziesii / Good	T180	13"	6FT	Western Red Cedar	Thuja plicata / Poor, Over pruned
T106	26"	20FT	Douglas Fir	Pseudotsuga menziesii / Good	T131	12"	9FT	Douglas Fir	Pseudotsuga menziesii / Fair, Over pruned	T156	19"	14FT	Douglas Fir	Pseudotsuga menziesii / Good	T181	13"	8FT	Ornamental Cherry	Prunus sp. / Poor, Over pruned
T107	7"	13FT	Japanese Maple	Acer platanoides / Good	T132	12"	9FT	Ornamental Cherry	Prunus sp. / Poor, Trunk damage	T157	26"	23FT	Douglas Fir	Pseudotsuga menziesii / Good	T182	13"	6FT	Western Red Cedar	Thuja plicata / Poor, Over pruned
T108	25"	28FT	Big Leaf Maple	Acer macrophyllum / Good	T133	9"	11FT	Crabapple	Malus sp. / Fair, Poor vigor	T158	17"	17FT	Douglas Fir	Pseudotsuga menziesii / Good	T183	14"	8FT	Western Red Cedar	Thuja plicata / Poor, Over pruned
T109	8"	8FT	Japanese Maple	Acer platanoides / Poor, Topped	T134	7"	9FT	Crabapple	Malus sp. / Fair, Poor vigor	T159	14"	15FT	Douglas Fir	Pseudotsuga menziesii / Good	T184	19"	14FT	Austrian Black Pine	Pinus nigra / Poor, Over pruned
T110	15"	22FT	Big Leaf Maple	Acer macrophyllum / Good	T135	7"	9FT	Crabapple	Malus sp. / Fair, Poor vigor	T160	27"	19FT	Douglas Fir	Pseudotsuga menziesii / Good	T185	14"	6FT	Western Red Cedar	Thuja plicata / Poor, Over pruned
T111	27"	21FT	Douglas Fir	Pseudotsuga menziesii / Good	T136	6"	11FT	Crabapple	Malus sp. / Fair, Poor vigor	T161	26"	16FT	Douglas Fir	Pseudotsuga menziesii / Good	T186	18"	12FT	Austrian Black Pine	Pinus nigra / Poor, Over pruned
T112	9"	7FT	Japanese Maple	Acer platanoides / Poor, Topped	T137	7"	9FT	Crabapple	Malus sp. / Poor, Poor pruning	T162	18"	23FT	Big Leaf Maple	Acer macrophyllum / Good	T187	14"	12FT	Ornamental Cherry	Prunus sp. / Poor, Topped
T113	9"	9FT	Japanese Maple	Acer platanoides / Poor, Phytophthora	T138	10"	7FT	Norway Spruce	Picea alba / Good	T163	22"	17FT	Douglas Fir	Pseudotsuga menziesii / Good	T188	35"	19FT	Douglas Fir	Pseudotsuga menziesii / Good
T114	14"	12FT	Japanese Maple	Acer platanoides / Fair, Trunk damage	T139	11"	8FT	Norway Spruce	Picea alba / Good	T164	13"	10FT	Ornamental Cherry	Prunus sp. / Poor, Topped	T189	23"	18FT	Douglas Fir	Pseudotsuga menziesii / Good
T115	13"	15FT	Japanese Maple	Acer platanoides / Poor, Trunk damage	T140	7"	8FT	Syrax	Syrax japonica / Fair, Poor pruning	T165	33"	20FT	Douglas Fir	Pseudotsuga menziesii / Good	T190	26"	15FT	Douglas Fir	Pseudotsuga menziesii / Good
T116	14"	16FT	Japanese Maple	Acer platanoides / Fair, Root damage	T141	9"	9FT	Syrax	Syrax japonica / Fair, Poor pruning	T166	27"	16FT	Douglas Fir	Pseudotsuga menziesii / Good	T191	32"	19FT	Douglas Fir	Pseudotsuga menziesii / Good
T117	15"	3FT	Bradford Pear	Pyrus calleryana / Poor, Topped	T142	34"	17FT	Douglas Fir	Pseudotsuga menziesii / Good	T167	23"	25FT	Big Leaf Maple	Acer macrophyllum / Good	T192	38"	23FT	Douglas Fir	Pseudotsuga menziesii / Good
T118	8"	9FT	Pin Oak	Quercus palustris / Poor, Topped	T143	22"	28FT	Douglas Fir	Pseudotsuga menziesii / Good	T168	9"	2FT	Japanese Maple	Acer palmatum / Poor, Topped	T193	18"	23FT	Douglas Fir	Pseudotsuga menziesii / Good
T119	17"	5FT	Bradford Pear	Pyrus calleryana / Poor, Topped	T144	27"	20FT	Douglas Fir	Pseudotsuga menziesii / Good	T169	22"	19FT	Douglas Fir	Pseudotsuga menziesii / Good	T194	8"	12FT	Ornamental Cherry	Prunus sp. / Fair, Trunk damage
T120	8"	6FT	Pin Oak	Quercus palustris / Poor, Topped	T145	29"	19FT	Douglas Fir	Pseudotsuga menziesii / Good	T170	13"	13FT	Douglas Fir	Pseudotsuga menziesii / Good	T195	6"	9FT	Ornamental Cherry	Prunus sp. / Poor, Trunk damage
T121	10"	11FT	Pin Oak	Quercus palustris / Fair, Over pruned	T146	30"	17FT	Douglas Fir	Pseudotsuga menziesii / Good	T171	24"	21FT	Douglas Fir	Pseudotsuga menziesii / Good	T196	8"	10FT	Ornamental Cherry	Prunus sp. / Fair, Trunk damage
T122	6"	8FT	Pin Oak	Quercus palustris / Good	T147	34"	15FT	Douglas Fir	Pseudotsuga menziesii / Good	T172	30"	20FT	Douglas Fir	Pseudotsuga menziesii / Good	T197	8"	15FT	Ornamental Cherry	Prunus sp. / Good
T123	16"	6FT	Bradford Pear	Pyrus calleryana / Poor, Topped	T148	14"	9FT	Western Red Cedar	Thuja plicata / Good	T173	23"	21FT	Douglas Fir	Pseudotsuga menziesii / Good	T198	9"	15FT	Ornamental Cherry	Prunus sp. / Good
T124	9"	10FT	Pin Oak	Quercus palustris / Good	T149	7"	7FT	Japanese Maple	Acer palmatum / Poor, Topped	T174	44"	17FT	Douglas Fir	Pseudotsuga menziesii / Good	T199	8"	13FT	Ornamental Cherry	Prunus sp. / Good



TREE PRESERVATION LEGEND

- TREE PROTECTIVE FENCING
- ROOT PROTECTION ZONE
- EXISTING TREE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION
- EXISTING TREE TO BE REMOVED
- PROPERTY LINE
- BIKE RACKS
- PROPOSED CONCRETE PAVING
- PROPOSED PLANTING AREA
- ROOT ZONE ENCROACHMENT

TREE PRESERVATION NOTES

TREE PROTECTION FENCING
Protective fencing shall be installed prior to any development activities, including but not limited to clearing, grading, excavation or demolition work. The contractor shall construct a 4' temporary fence with steel posts at 8' on center max around all existing trees to remain and all areas as shown on this plan. No bracket anchor systems shall be used. Posts shall be driven into the ground with caution to not disturb existing roots. Contractor shall obtain approval from the project arborist that construction may begin after all described fencing is in place.

See below for tree protection fencing details.

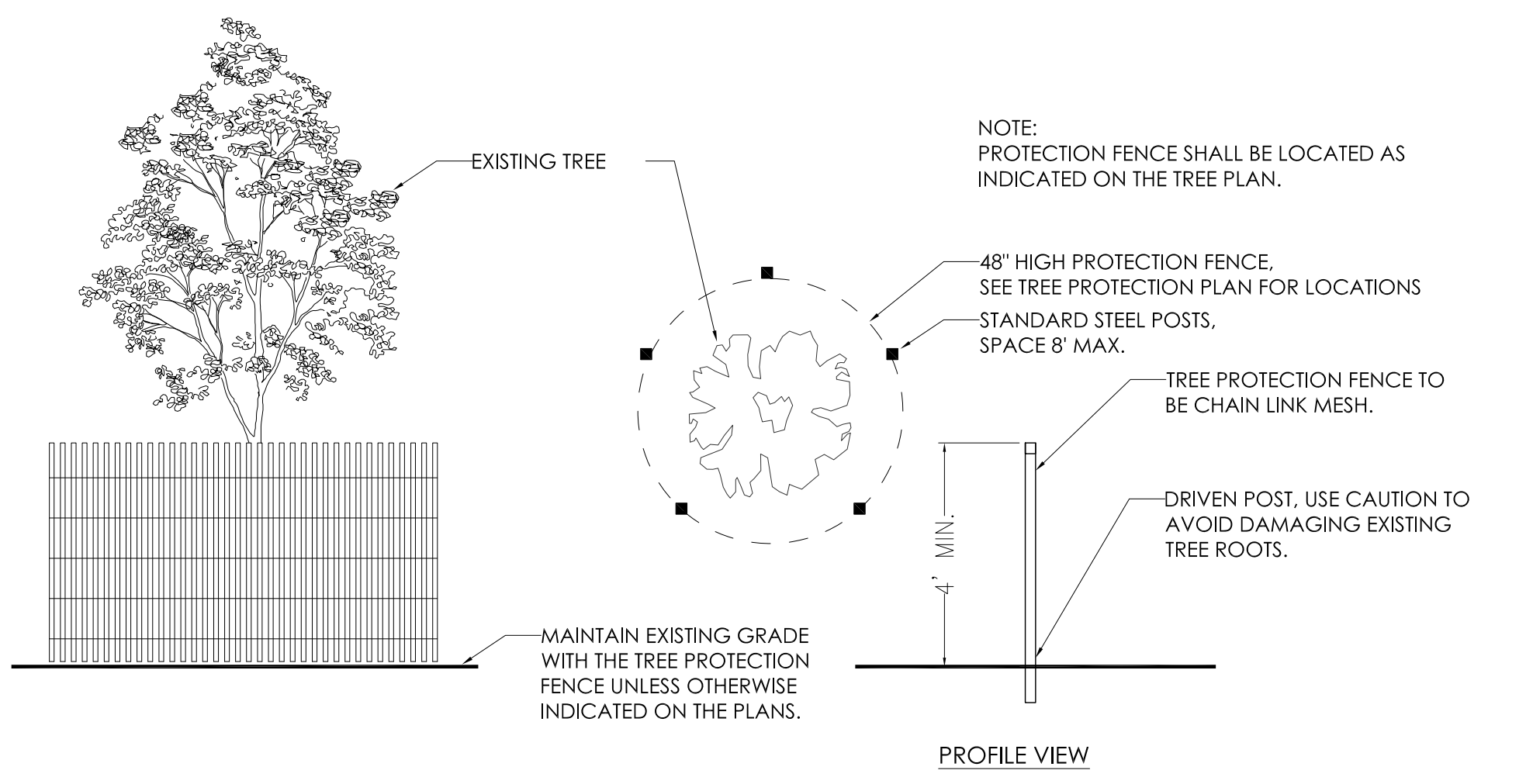
SIGNAGE/TAGGING
Approved sign shall be attached to the chain link fence stating that inside the fencing is a tree protection zone, not to be disturbed unless prior approval has been obtained from the project arborist.

TREE PRESERVATION PROCEDURE
Protective fencing shall be removed only after approval from project arborist.

PRUNING
Prior to major limb or root pruning, consult with the project arborist. Use no equipment that pulls roots, such as a backhoe or trencher. Do not cut roots over 2" in diameter without consulting a Certified Arborist. Do not prune trees immediately prior to, during, or immediately after construction impact. Perform pruning only if unavoidable due to conflicts with proposed development. Prior to pruning, consult with the project arborist.

GRADING
No grading is to occur within the Tree Protection Zone. See Civil for proposed Grading Plan.

MITIGATION
See Landscape Plan for tree mitigation notes.

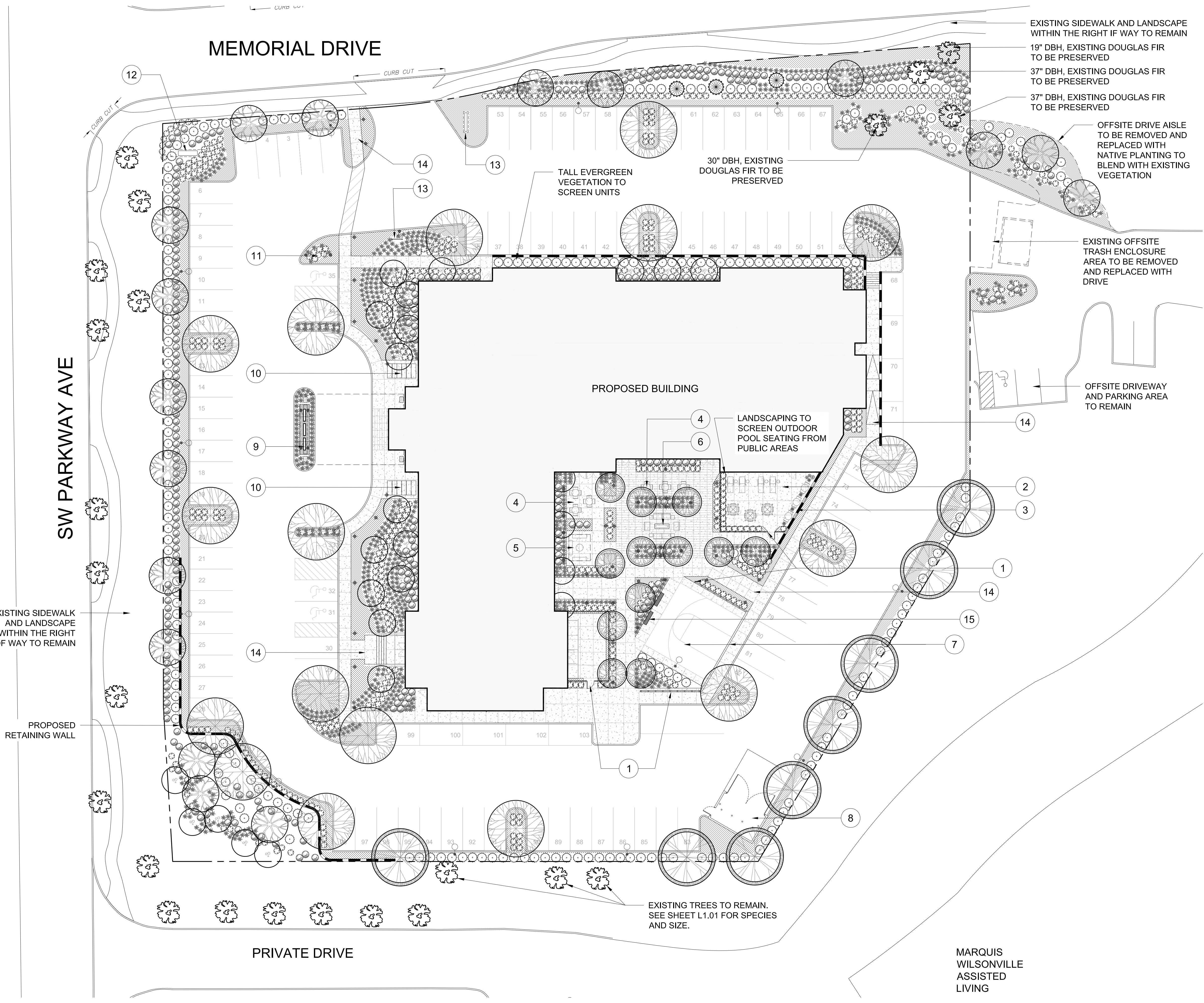


TREE PLAN
SCALE 1" = 20'-0"

PLANT SCHEDULE							
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	HABIT	QTY
TREES							
(Symbol)	ACER CIRCINATUM	VINE MAPLE	10 FT HEIGHT	AS SHOWN	B&B MULTI-TRUNK	DECIDUOUS	26
(Symbol)	CORNUS NUTTALLII	PACIFIC DOGWOOD	2" CAL.	AS SHOWN	B&B SINGLE-TRUNK	DECIDUOUS	17
(Symbol)	ZELKOVA SERRATA 'VILLAGE GREEN'	VILLAGE GREEN ZELKOVA	2" CAL.	AS SHOWN	B&B	DECIDUOUS	8
(Symbol)	QUERCUS 'CRIMSON SPIRE'	CRIMSON SPIRE OAK	2" CAL.	AS SHOWN	B&B	EVERGREEN	12
(Symbol)	QUERCUS FRAINETTO 'SCHMIDT'	FOREST GREEN OAK	2" CAL.	AS SHOWN	B&B	DECIDUOUS	17
(Symbol)	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	8 FT HEIGHT	AS SHOWN	B&B	EVERGREEN	3

PLANT SCHEDULE							
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	HABIT	QTY	
TALL SHRUBS (6 FEET AND TALLER)							
(Symbol)	MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	5 GAL.	AS SHOWN	EVERGREEN	221	
(Symbol)	PHILADELPHUS LEWISII	MOCK ORANGE	5 GAL.	AS SHOWN	DECIDUOUS		
(Symbol)	RHAMNUS ALATERNUS	ITALIAN BUCKTHORN	5 GAL.	AS SHOWN	EVERGREEN		
(Symbol)	AMELANCHIER ALNIFOLIA 'REGENT'	SERVICEBERRY	5 GAL.	AS SHOWN	DECIDUOUS		
(Symbol)	TAXUS X MEDIA 'HICKSI'	HICKS YEW	6-8 FT HEIGHT	AS SHOWN	EVERGREEN		
MEDIUM SHRUBS (4 TO 6 FEET)							
(Symbol)	SPIRAEA DOUGLASII	WESTERN SPIRAEA	5 GAL.	AS SHOWN	DECIDUOUS	314	
(Symbol)	NANDINA DOMESTICA	HEAVENLY BAMBOO	5 GAL.	AS SHOWN	EVERGREEN		
(Symbol)	MAHONIA AQUIFOLIUM	TALL OREGON GRAPE	5 GAL.	AS SHOWN	EVERGREEN		
(Symbol)	VIBURNUM TINUS	LAURUSTINUS VIBURNUM	5 GAL.	AS SHOWN	EVERGREEN		
(Symbol)	FOTHERGILLA MAJOR 'MT AIRY'	FOTHERGILLA	5 GAL.	AS SHOWN	DECIDUOUS		

PLANT SCHEDULE							
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	HABIT	QTY	
LOW SHRUBS (3 TO 4 FEET)							
(Symbol)	DAPHNE TANGUTICA	DAPHNE	3 GAL.	AS SHOWN	EVERGREEN	568	
(Symbol)	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	3 GAL.	AS SHOWN	EVERGREEN		
(Symbol)	SARCOCOCCA RUSCIFOLIA	FRAGRANT SWEET BOX	3 GAL.	AS SHOWN	EVERGREEN		
(Symbol)	SPIRAEA BETULIFOLIA	BIRCHLEAF SPIRAEA	3 GAL.	AS SHOWN	DECIDUOUS		
(Symbol)	SPIRAEA x BUMALDA	BUMALDA SPIRAEA	3 GAL.	AS SHOWN	EVERGREEN		
GRASSES AND GROUNDCOVERS							
(Symbol)	JUNCUS PATENS	SPREADING RUSH	1 GAL.	12" O.C.	EVERGREEN	912	
(Symbol)	GAULTHERIA SHALLON	SALAL	1 GAL.	24" O.C.	EVERGREEN		
(Symbol)	POLYSTICHUM MUNITUM	SWORD FERN	1 GAL.	24" O.C.	EVERGREEN		
(Symbol)	CAREX MORROWII 'AUREA VARIEGATA'	VARIEGATED JAPANESE SEDGE	1 GAL.	12" O.C.	EVERGREEN	5,250	
(Symbol)	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LILY TURF	1 GAL.	12" O.C.	EVERGREEN		
(Symbol)	TRACHELOSPERMUM ASIATICUM	CREeping JASMINE	1 GAL.	18" O.C.	EVERGREEN		

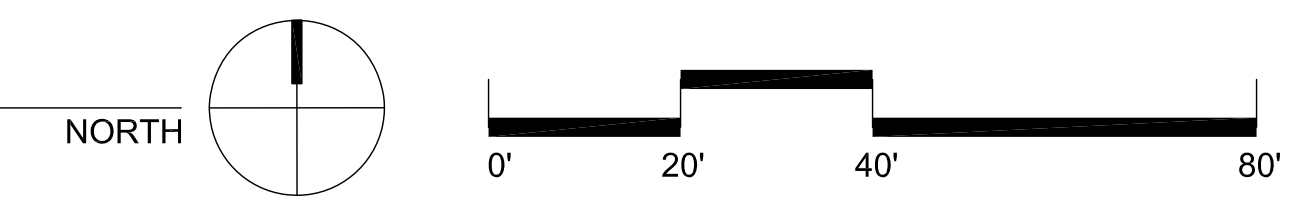


LEGEND		GENERAL NOTES	
(Symbol)	EXISTING TREES TO REMAIN AND BE PRESERVED DURING CONSTRUCTION. SEE SHEET L1.01 AND ARBORIST REPORT FOR PRESERVATION REQUIREMENTS.	1.	SEE CIVIL DRAWINGS FOR NEW VEHICULAR PAVING, CURBS, STRIPING, DRAIN LOCATIONS AND PEDESTRIAN IMPROVEMENTS WITHIN THE RIGHT-OF-WAY.
(Symbol)	BIKE RACKS	2.	SEE ELECTRICAL DRAWINGS FOR SITE LIGHTING AND ELECTRICAL UTILITIES.
(Symbol)	PEDESTRIAN CONCRETE PAVING	3.	ALL CONCRETE PAVING TO RECEIVE A LIGHT BROOM FINISH PERPENDICULAR TO THE DIRECTION OF TRAVEL, UNLESS OTHERWISE NOTED.
(Symbol)	PROPERTY LINE	4.	SEE SHEET L1.01 FOR LOCATIONS, SIZES AND CONDITIONS OF EXISTING TREES TO BE REMOVED.
(Symbol)	POST LIGHT, SEE ELEC.	5.	ALL INTERIOR PARKING LOT TREES MUST PROVIDE A BRANCHING MINIMUM OF SEVEN (7) FEET CLEARANCE AT MATURITY.
(Symbol)	PATH LIGHT, SEE ELEC.		
(Symbol)	UPLIGHT, SEE ELEC.		
(Symbol)	IN-GROUND LIGHT, SEE ELEC.		

KEY NOTES	
1	PEDESTRIAN FENCE AND GATE
2	GATED OUTDOOR POOL DECK
3	60" HIGH DECORATIVE PRIVACY WALL
4	GARDEN TERRACE PATIO & OUTDOOR SEATING
5	GARDEN TERRACE COVERED SEATING
6	GARDEN TERRACE FIRE PIT & LOUNGE SEATING
7	30' x 30' SPORT COURT, FENCED BEHIND HOOP
8	TRASH ENCLOSURE, SEE ARCH
9	ENTRY WATER FEATURE
10	BIKE RACK
11	FLAG POLE, SEE ARCH
12	HILTON GARDEN INN SIGNAGE, SEE ARCH
13	HILTON GARDEN INN DIRECTIONAL SIGN, SEE ARCH
14	PEDESTRIAN CONCRETE
15	BENCH

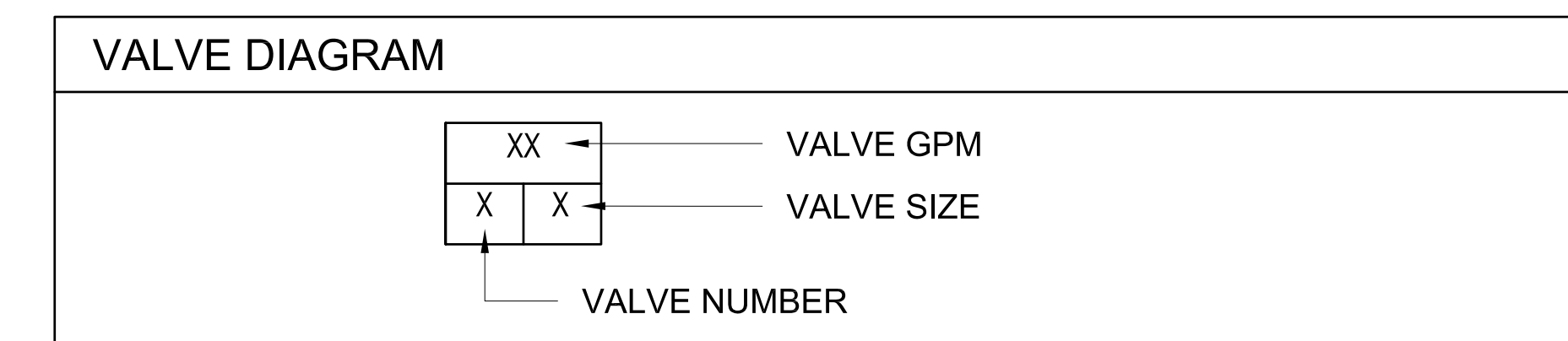
TREE MITIGATION & LANDSCAPE NOTES	
EXISTING TREE INFORMATION:	
ONSITE TREES TO BE PRESERVED.....	4 (123" DBH)
ONSITE TREES TO BE REMOVED.....	72 (1,416 DBH)
ONSITE TREES IN POOR HEALTH.....	22 (281 DBH), NO MITIGATION, SEE ARBORIST REPORT
REQUIRED MITIGATION.....	50 TREES (72-22 = 50, TREE FOR TREE MITIGATION)
PROPOSED MITIGATION.....	83 TREES TO BE PLANTED ONSITE (SEE PLANT SCHEDULE)
TREE PRESERVATION CREDIT.....	17 TREE CREDITS (SEE PLAN FOR TREE SIZES)
TREE MITIGATION REQUIREMENTS ARE MET WITH TREE FOR TREE MITIGATION.	
SITE/LANDSCAPE INFORMATION:	
TOTAL SITE.....	103,416 SQ FT
ONSITE LANDSCAPING.....	22,286
TOTAL LANDSCAPE PERCENTAGE.....	22%

LANDSCAPE PLAN
SCALE 1" = 20'-0"

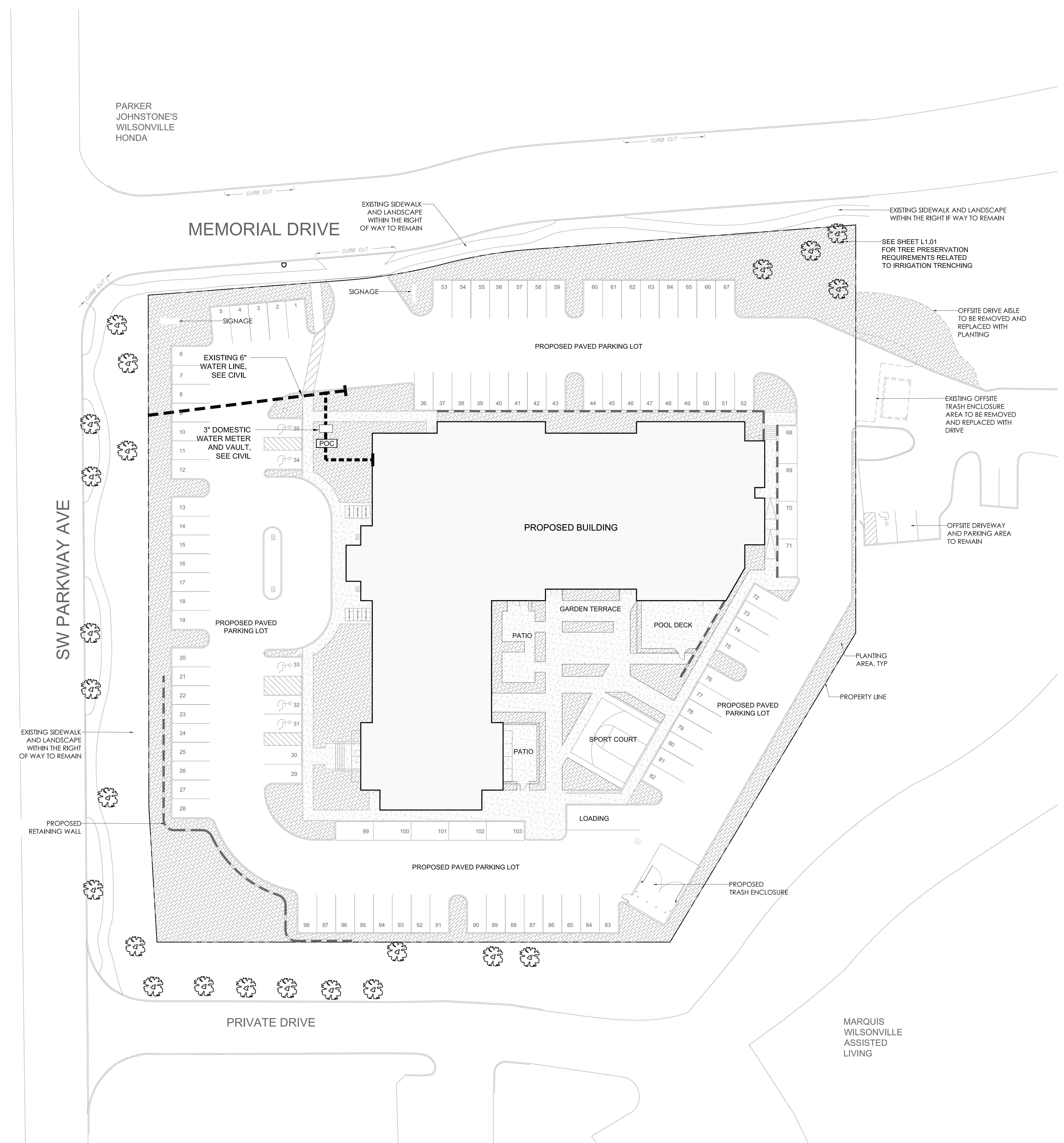




IRRIGATION LEGEND		
SYMBOL	NAME/MANUFACTURER	MODEL/PERFORMANCE/REMARKS
	MASTER GATE VALVE	
	SHUTOFF VALVES	
	RAINBIRD MANUAL DRAIN VALVE	MODEL # - 16A-FDV
	RAINBIRD CONTROL VALVE	MODEL # - 150-PEB-PRS-D
	HUNTER QUICK COUPLER	MODEL # - HQ-44-LRC-AW-R
	IRRIGATION SLEEVING	3" SCHEDULE 40 PVC SLEEVES
	MAINLINE	SEE PLANS FOR SIZING
	LATERAL LINE	SEE PLANS FOR SIZING
	IRRIGATION POINT OF CONNECTION	
	HUNTER I-CORE CONTROLLER	MODEL # - ACC-2400-PED
	HUNTER SOLAR SYNC ET SENSOR	ACC CONTROLLER HAS SOLAR SYNC BUILT IN
	HUNTER TREE BUBBLERS	HUNTER PNC-50 BUBBLERS
	HUNTER: PROS-06-PRS40-CV	MPCORNER / 45-105 8'-15" RADIUS
	HUNTER: PROS-06-PRS40-CV	MP1000-90 / 90-210 8'-15" RADIUS
	HUNTER: PROS-06-PRS40-CV	MP1000-210 / 210-270 8'-15" RADIUS
	HUNTER: PROS-06-PRS40-CV	MP1000-360 / 360 8'-15" RADIUS
	HUNTER: PROS-06-PRS40-CV	MP2000-90 / 90-210 13'-21"R
	HUNTER: PROS-06-PRS40-CV	MP2000-210 / 210-270 13'-21"R
	HUNTER: PROS-06-PRS40-CV	MP2000-360 / 360 13'-21"R
	HUNTER: PROS-06-PRS40-CV	MP3000-90 / 90-210 22'-30"R
	HUNTER: PROS-06-PRS40-CV	MP3000-210 / 210-270 22'-30"R
	HUNTER: PROS-06-PRS40-CV	MP3000-360 / 360 22'-30"R
	HUNTER: PROS-06-PRS40-CV	MPS530 / 5'X30'
	HUNTER: PROS-06-PRS40-CV	MPCRS515 / 5'X15'
	HUNTER: PROS-06-PRS40-CV	MPLCS515 / 5'X15'
	PLANTING BEDS TO BE IRRIGATED WITH MP ROTATORS	

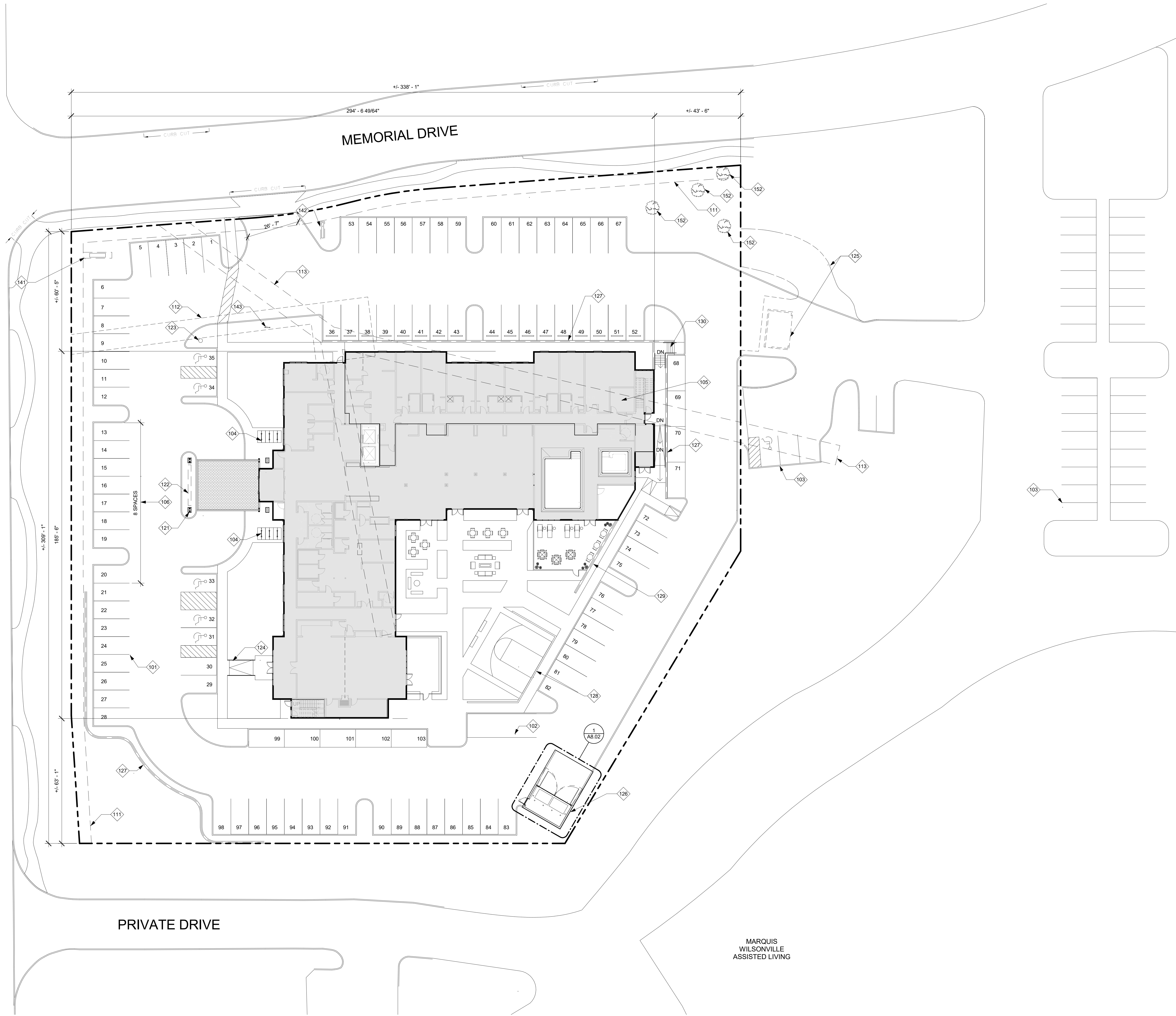


- NOTES**
- HIGH EFFICIENCY SPRINKLER HEADS AND DRIP IRRIGATION WILL BE UTILIZED TO PROVIDE IRRIGATION FOR ALL PROPOSED TREES, SHRUBS AND GROUNDCOVER.
 - A WEATHER SENSOR WILL BE UTILIZED TO AUTOMATICALLY SHUTDOWN THE IRRIGATION SYSTEM WHEN THERE IS SUFFICIENT RAIN FALL.
 - SLEEVING IS REQUIRED FOR ALL IRRIGATION AND CONTROL WIRE UNDER ALL PAVEMENTS, WALLS, ETC.. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF SIZE OF ALL SLEEVING REQUIRED FOR COMPLETE INSTALLATION OF WORK.
 - MAINLINE SHOWN RUNNING PARALLEL TO PAVING EDGE SHALL BE INSTALLED IN ADJACENT PLANTING AREAS AND NOT UNDER PAVEMENT.
 - VERIFY SITE DIMENSIONS AND EXISTING CONDITIONS INCLUDING LOCATIONS OF UNDERGROUND UTILITIES SUCH AS GAS LINE AND WATER LINES PRIOR TO BEGINNING WORK.
 - IRRIGATION PLAN IS DIAGRAMMATIC. PLACE ALL VALVE BOXES/POC IN PLANTING AREAS, AWAY FROM EDGE. VALVE BOXES PLACED IN SHRUB AREAS OR CIRCULATION PATHS WILL BE MOVED AT CONTRACTOR EXPENSE.
 - PERFORM PRESSURE TEST AND VERIFY STATIC PRESSURE AT WATER METER SO IRRIGATION PLAN CAN BE FINALIZED.
 - A BACKFLOW DEVICE SHALL BE INSTALLED TO ACCOMMODATE AT LEAST 24 GPM OF FLOW PER AUTOMATIC VALVE/ZONE.
 - DRAIN VALVES FOR LATERAL LINES REQUIRED FOR WEATHERIZATION.
 - ALL SPRAYHEADS AND ROTORS TO RECEIVE 6" POP-UPS UNLESS OTHERWISE NOTED.



INTERSTATE-5

SW PARKWAY AVE



PRIVATE DRIVE

MARQUIS WILSONVILLE ASSISTED LIVING

GENERAL NOTES:

- A SEE G1.01 FOR GENERAL SITE INFORMATION INCLUDING, PARKING COUNTS
- B SEE CIVIL, LANDSCAPE, ELECTRICAL, MECHANICAL, PLUMBING FOR ADDITIONAL WORK NOT INDICATED ON THIS DRAWING.
- C SLOPE ALL PAVING 1/4" PER FOOT MIN. TO DRAIN. WALKWAYS TO MAINTAIN SLOPE GREATER THAN 1:20 IN THE PRIMARY DIRECTION OF TRAVEL AND 1:50 PERPENDICULAR TO THE PRIMARY DIRECTION OF TRAVEL.
- D SLOPE ALL LANDSCAPED AREA 1/2" PER FOOT MIN.
- E SLOPE ALL GRADE WITHIN 5'-0" OF THE BUILDING AWAY FROM THE FOUNDATION

KEYNOTES:

- 101 TYP. PARKING SPACE DIMENSIONS
- 102 LOADING BERTH
- 103 EXISTING OFFSITE SHARED PARKING. SHARED PARKING AGREEMENT W/ ADJACENT OWNER ALLOWS FOR USE OF 40 ADDITIONAL SPACES
- 104 (6) SHORT TERM BICYCLE SPACES (TYP. GROUND MOUNTED RACKS) ON EACH SIDE OF ENTRANCE
- 105 (12) LONG TERM BIKE SPACES (WALL MOUNTED RACKS) INSIDE LONG TERM BIKE STORAGE - 111' ACCESS PROVIDED BY GUESTROOM KEYCARD.
- 106 (6) SPACES (13-20) TO BE SIGNED "RESERVED - CARPOOL/VANPOOL ONLY"
- 111 UTILITY EASEMENT ALONG NORTH AND WEST PROPERTY LINES
- 112 WATERLINE EASEMENT
- 113 SEWER EASEMENT
- 121 PORTE COCHERE
- 122 WATER FEATURE
- 123 FLAGPOLE WITH UPLIGHTING - SEE LANDSCAPE & ELECTRICAL
- 124 CONCRETE RAMP W/ STEEL HANDRAILS
- 125 REMOVE EXISTING OFFSITE TRASH ENCLOSURE AND CURBS
- 126 NEW TRASH AND RECYCLING ENCLOSURE
- 127 RETAINING WALL W/ GUARDRAIL - SEE CIVIL
- 128 30x30' SPORT COURT FENCED ON THREE SIDES
- 129 4'-0" DECORATIVE WALL TO SCREEN PARKING LOT
- 130 CONCRETE STAIRS W/ GUARDRAIL & HANDRAILS - SEE CIVIL
- 141 SITE SIGN 1 - SEE 1/A8.01
- 142 SITE SIGN 2 - SEE 5/A8.01
- 143 SITE SIGN 3 - SEE 5/A8.01
- 152 EXISTING TREE TO REMAIN, TYP. SEE LANDSCAPE FOR NEW PLANTINGS.

LEGEND:

--- PROPERTY LINE

PRELIMINARY NOT FOR CONSTRUCTION



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WILSONVILLE HILTON GARDEN INN
30800 SW PARKWAY AVE, WILSONVILLE, OREGON
SITE DEVELOPMENT AND DESIGN REVIEW

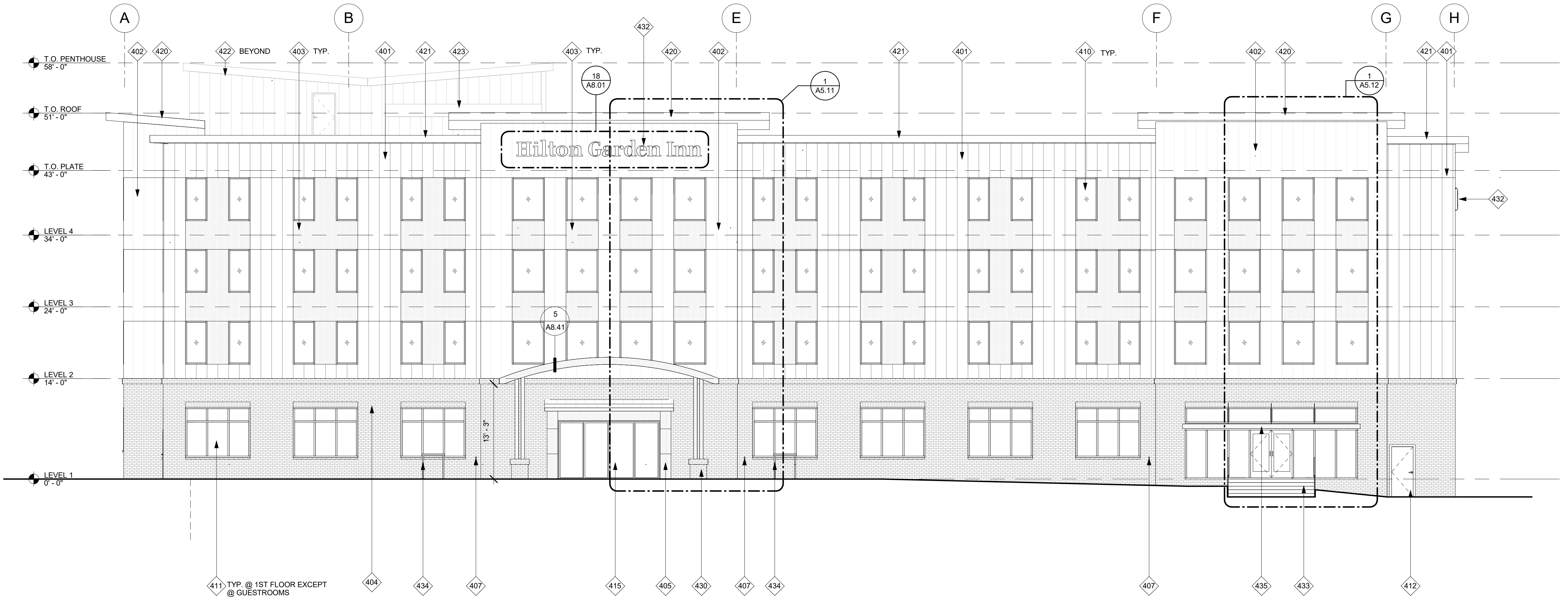
SITE PLAN

PROJECT NO. 16027

06.23.2017

REVISIONS:

08.28.2017



1 WEST ELEVATION
SCALE: 1/8" = 1'-0"



2 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- A DIMENSIONS ARE TO GRIDLINE, FACE OF STUD, UNLESS OTHERWISE NOTED.
- B NOT ALL GRIDLINES SHOWN FOR CLARITY

KEYNOTES:

- 401 RAINSCREEN FIBER CEMENT PANEL SIDING - COLOR 1
- 402 RAINSCREEN FIBER CEMENT PANEL SIDING - COLOR 2
- 403 RAINSCREEN FIBER CEMENT PANEL SIDING - COLOR 3
- 404 ADHERED MASONRY VENEER
- 405 ARCHITECTURAL METAL WALL PANEL
- 407 DAYLIGHT INTERNAL ROOF DRAINS @ 36" A.F.F.
- 410 FIBERGLASS WINDOW
- 411 ALUMINUM STOREFRONT SYSTEM
- 412 HOLLOW METAL DOOR(S)
- 415 ALUMINUM AUTOMATIC SLIDING ENTRY DOORS
- 420 RAISED PARAPET W/ FLAT OVERHANGING METAL ROOF. PROVIDE LED STRIP LIGHT ON ALL THREE SIDES OF FAÇADE BELOW TO ILLUMINATE SOFFIT.
- 421 EXTEND TOP CHORD OF ROOF TRUSSES TO CREATE ROOF OVERHANG. PROVIDE PREFINISHED SHEET METAL FLASHING AND FASCIA
- 422 STAIR PENTHOUSE/ROOF ACCESS
- 423 ELEVATOR OVERRUN BEYOND
- 430 PORTE COCHERE - CURVED GLAZING SUPPORTED BY PAINTED HSS STRUCTURE ON CONCRETE PEDESTALS
- 432 BUILDING MOUNTED BRANDING SIGNAGE
- 433 CONCRETE LANDING AND STAIRS W/ STEEL HANDRAILS
- 434 BIKE RACKS - SEE SITE PLAN
- 435 AWNING - SLOPED GLAZING SUPPORTED BY PAINTED HSS STRUCTURE & STEEL TIE RODS

LEGEND:

PRELIMINARY
NOT FOR
CONSTRUCTION

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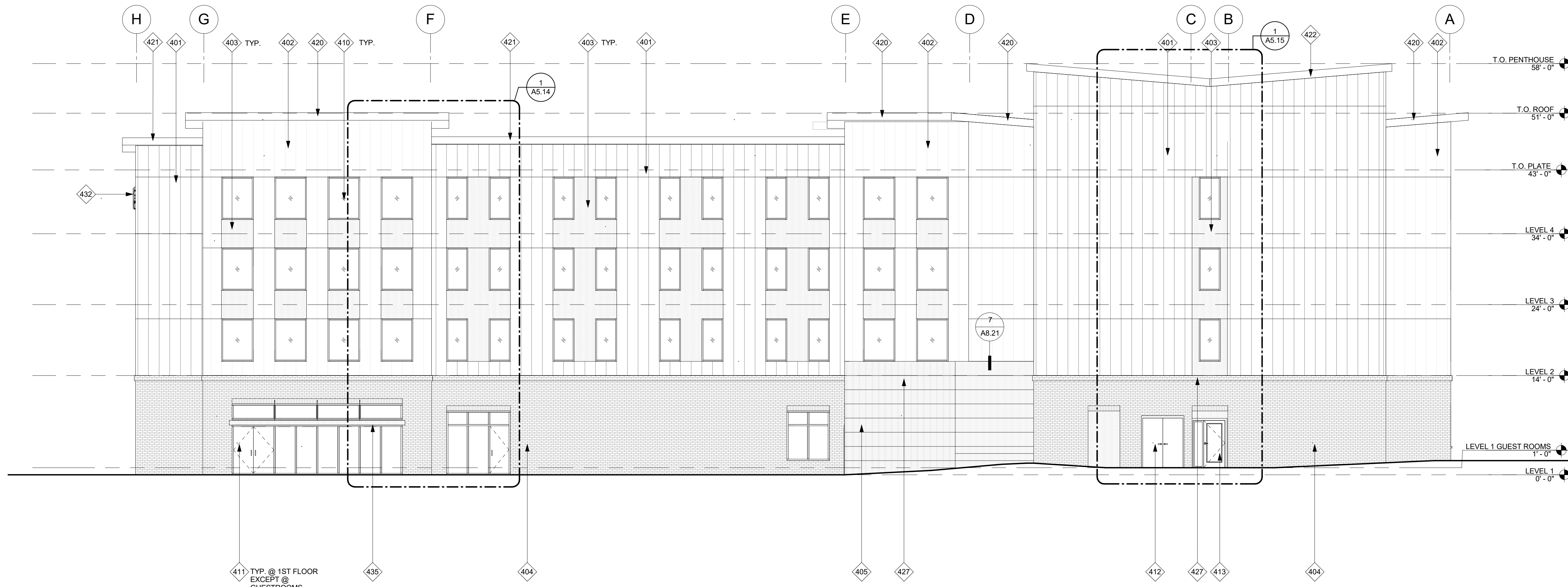
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SITE DEVELOPMENT AND DESIGN REVIEW

EXTERIOR
ELEVATIONS
PROJECT NO.
16027
06.23.2017

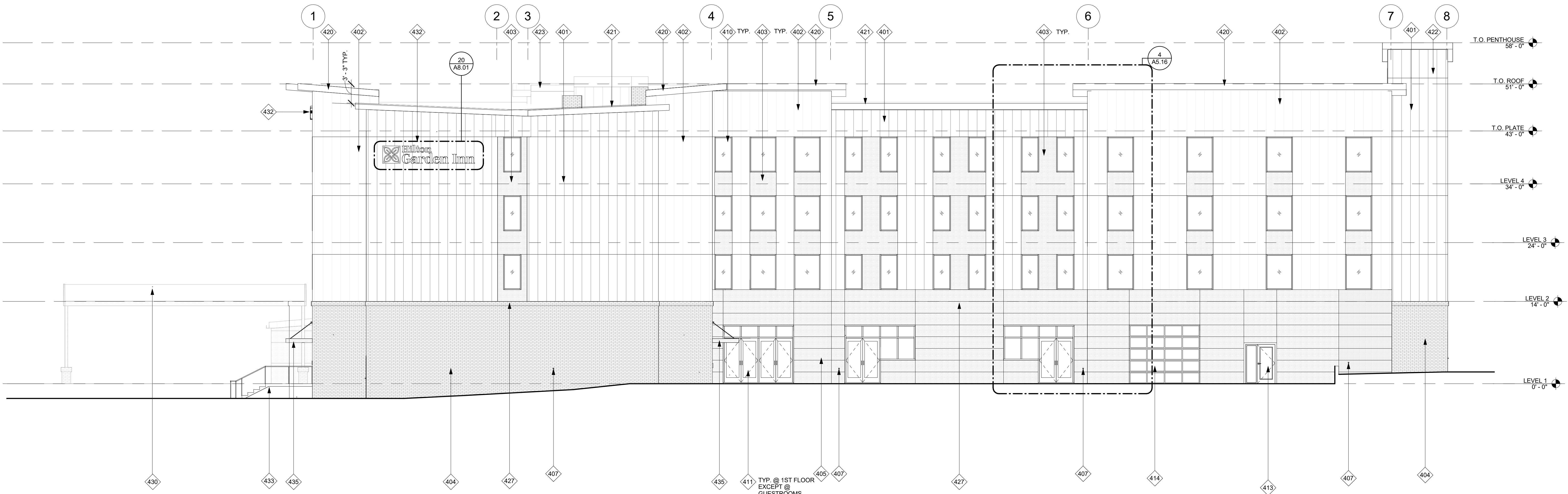
REVISIONS:

A4.01

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1 EAST ELEVATION
SCALE: 1/8" = 1'-0"



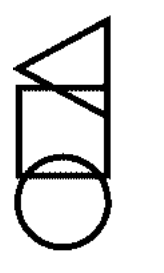
2 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- A DIMENSIONS ARE TO GRIDLINE, FACE OF STUD, UNLESS OTHERWISE NOTED.
- B NOT ALL GRIDLINES SHOWN FOR CLARITY

KEYNOTES:

- 401 RAINSCREEN FIBER CEMENT PANEL SIDING - COLOR 1
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- 411 ALUMINUM STOREFRONT SYSTEM
- 412 HOLLOW METAL DOOR(S)
- 413 FULL LITE HOLLOW METAL DOOR W/ SIDE LITE
- 414 OVERHEAD DOOR @ POOL AREA
- 420 RAISED PARAPET W/ FLAT OVERHANGING METAL ROOF. PROVIDE LED STRIP LIGHT ON ALL THREE SIDES OF FACADE BELOW TO ILLUMINATE SOFFIT
- 421 EXTEND TOP CHORD OF ROOF TRUSS TO CREATE ROOF OVERHANG. PROVIDE PREFINISHED SHEET METAL FLASHING, AND FASCIA
- 422 STAIR PENTHOUSE/ROOF ACCESS
- 423 ELEVATOR OVERRUN BEYOND
- 427 ROOF @ SECOND FLOOR LEVEL
- 430 PORTE COCHERE - CURVED GLAZING SUPPORTED BY PAINTED HSS STRUCTURE ON CONCRETE PEDESTALS
- 432 BUILDING MOUNTED BRANDING SIGNAGE
- 433 CONCRETE LANDING AND STAIRS W/ STEEL HANDRAILS
- 435 AWNING - SLOPED GLAZING SUPPORTED BY PAINTED HSS STRUCTURE & STEEL TIE RODS



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SITE DEVELOPMENT AND DESIGN REVIEW

EXTERIOR ELEVATIONS
PROJECT NO. 16027
06.23.2017

REVISIONS:

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1 NW CORNER
SCALE:



3 BUILDING IMAGE - I5
SCALE: 3" = 1'-0"



2 SE CORNER
SCALE:



4 BUILDING IMAGE - AERIAL
SCALE: 12" = 1'-0"

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SITE DEVELOPMENT AND DESIGN REVIEW

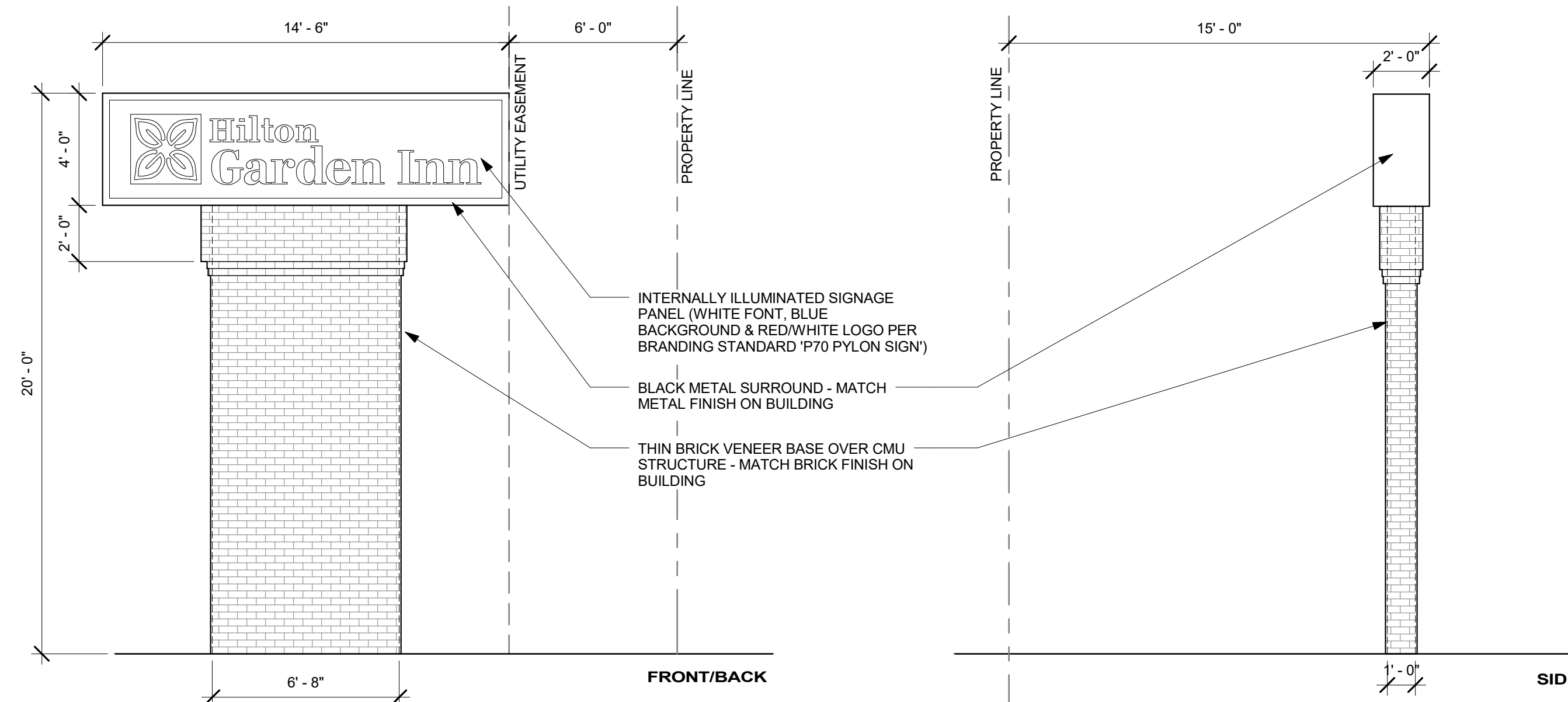
BUILDING
RENDERINGS

PROJECT NO.
16027

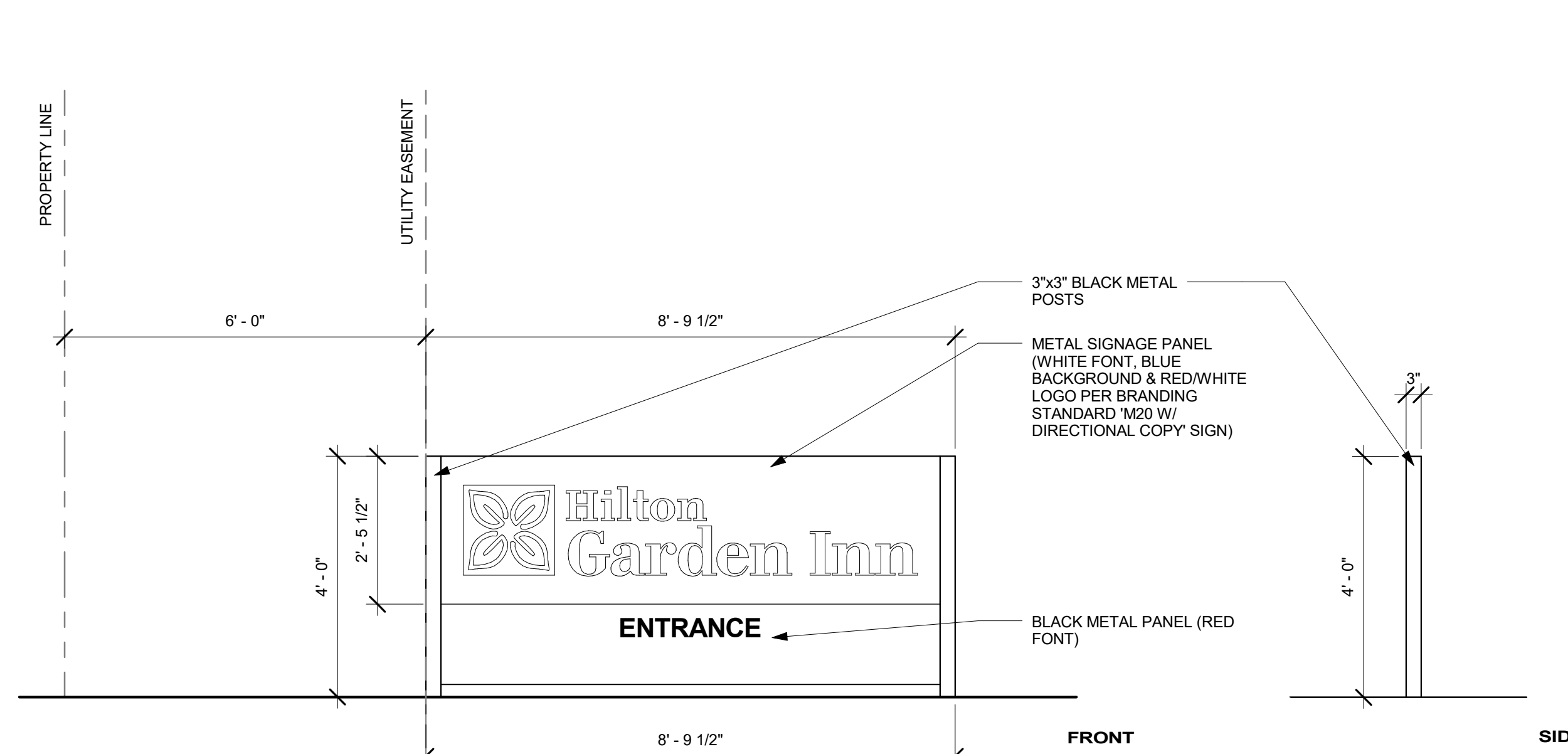
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REVISIONS:

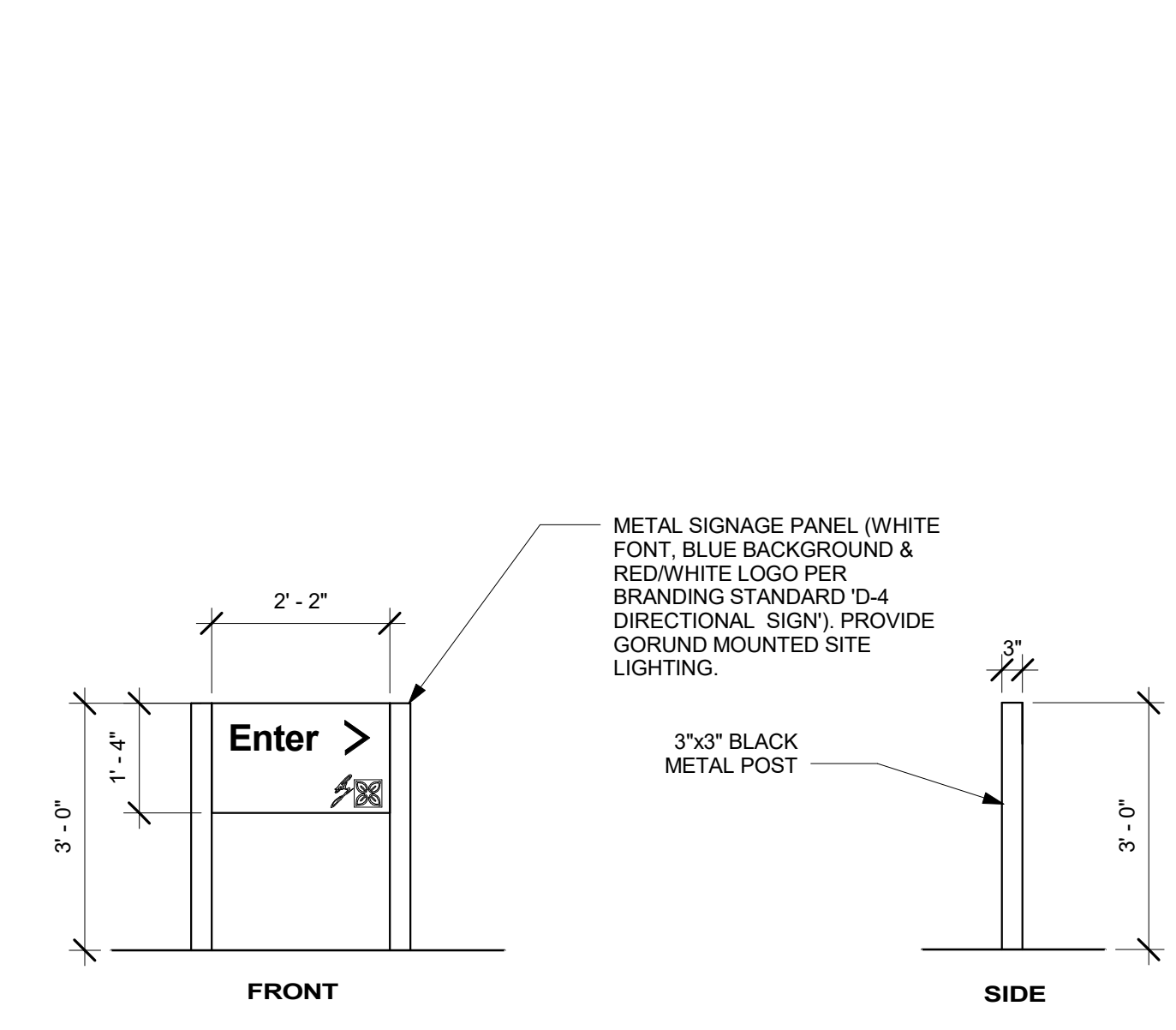
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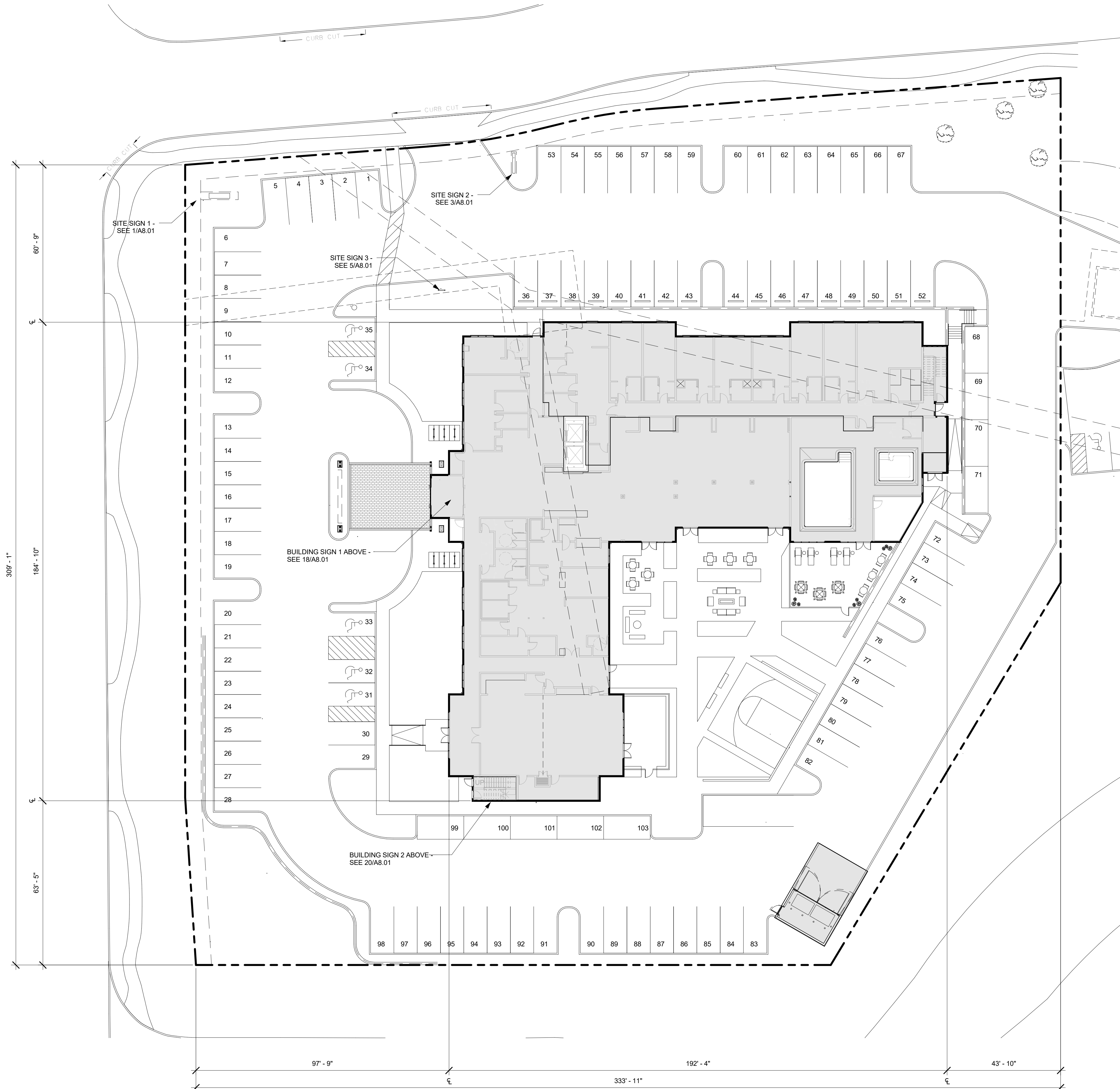
1 SITE SIGN 1
SCALE: 1/4" = 1'-0"



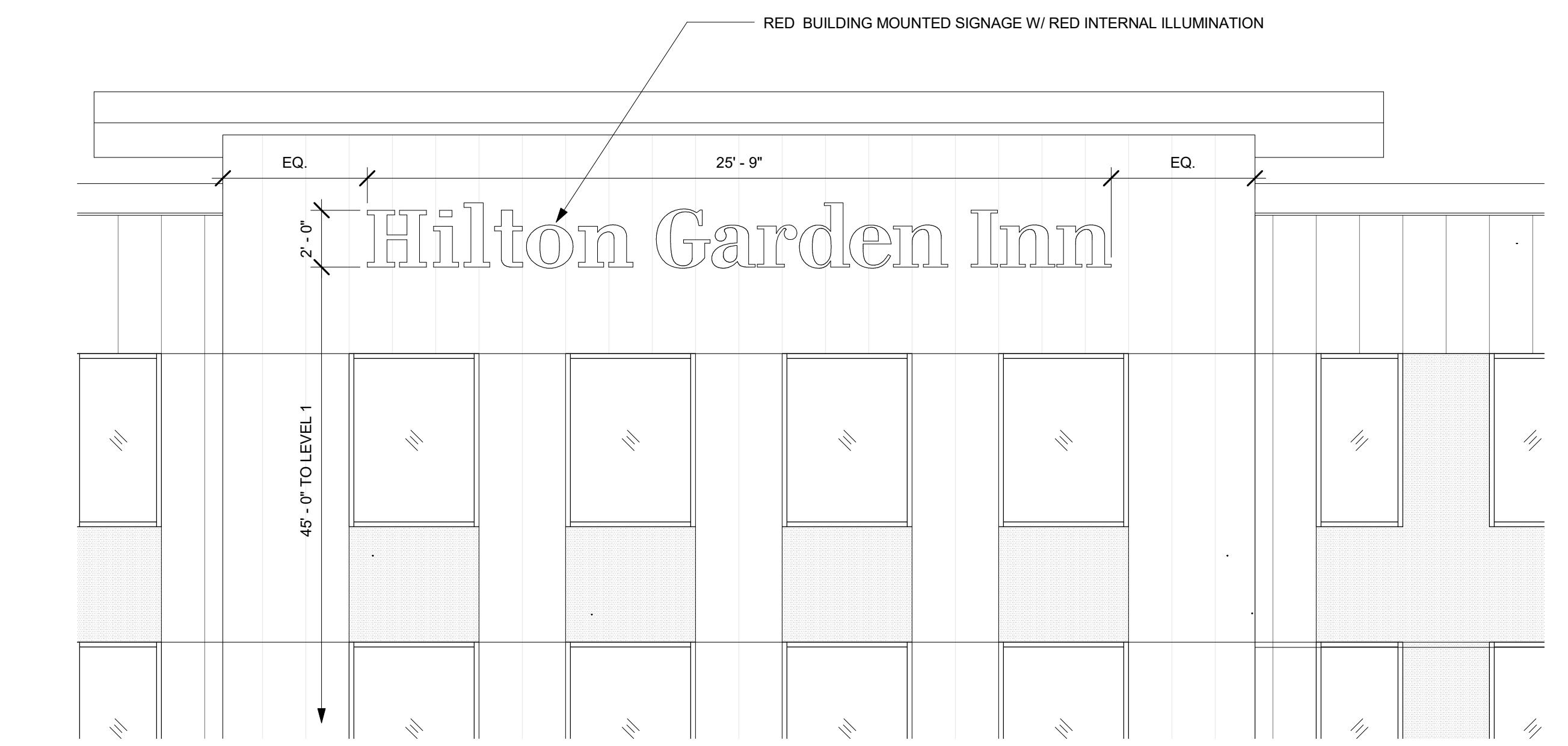
3 SITE SIGN 2
SCALE: 1/2" = 1'-0"



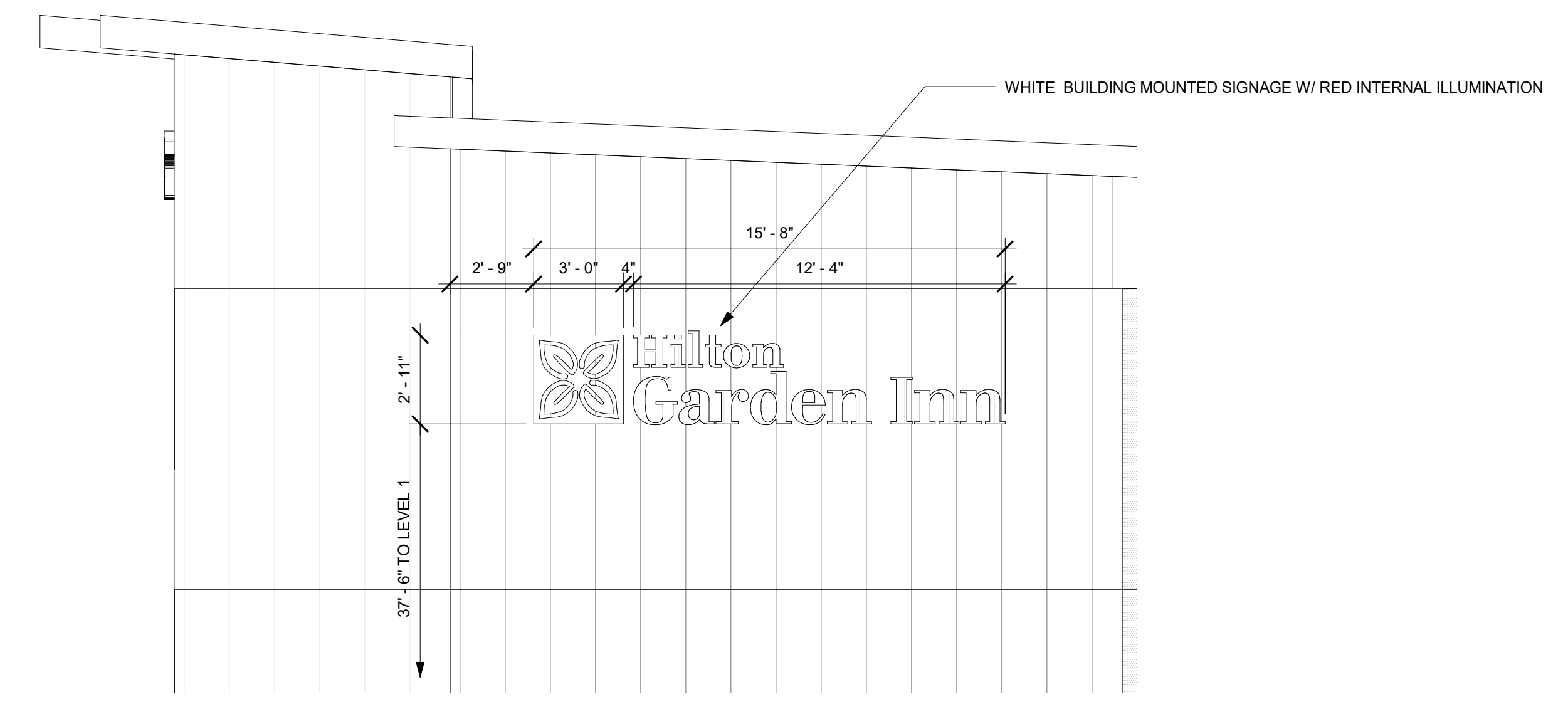
5 SITE SIGN 3
SCALE: 1/2" = 1'-0"



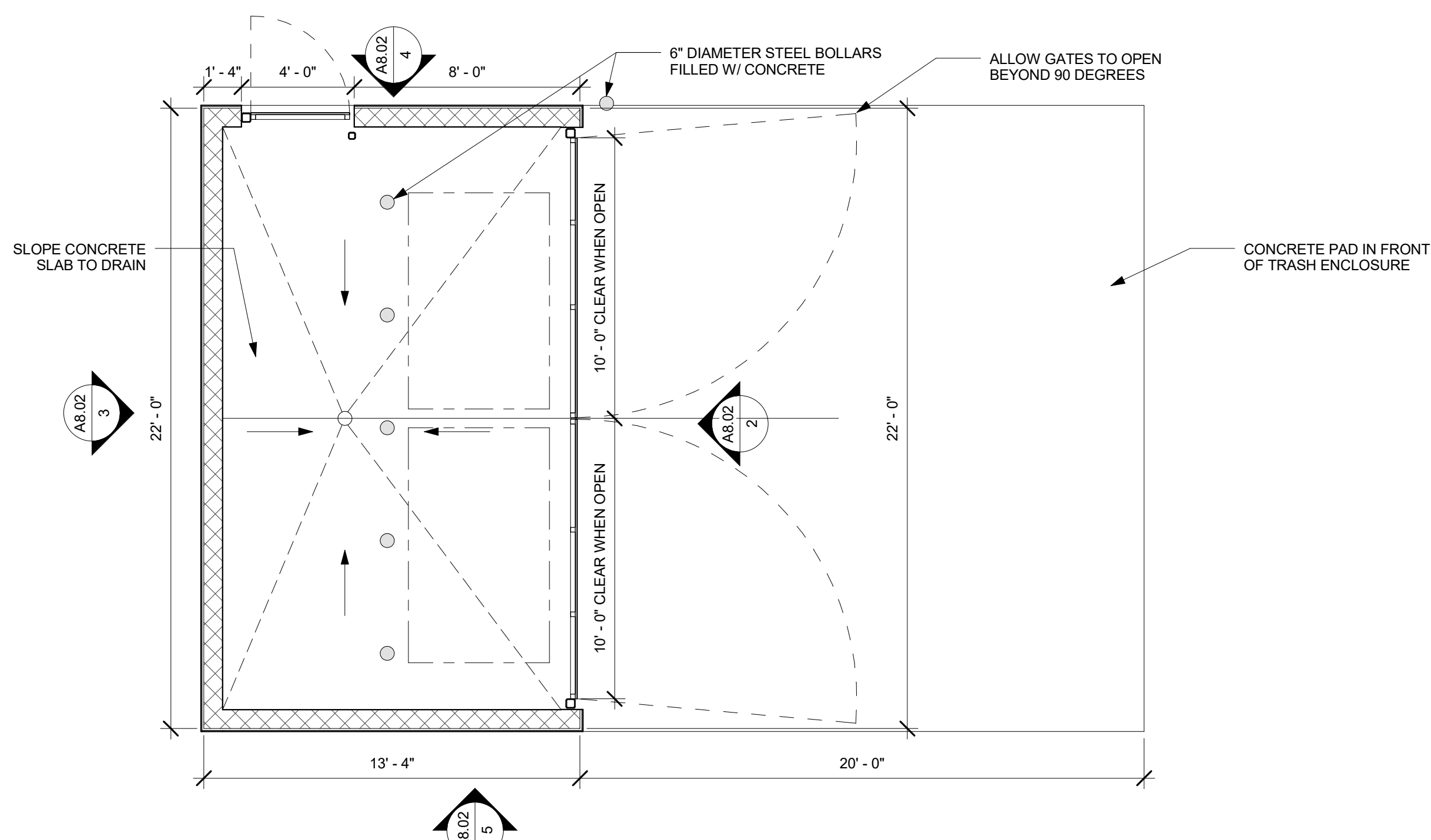
7 SITE SIGNAGE PLAN
SCALE: 1" = 20'-0"



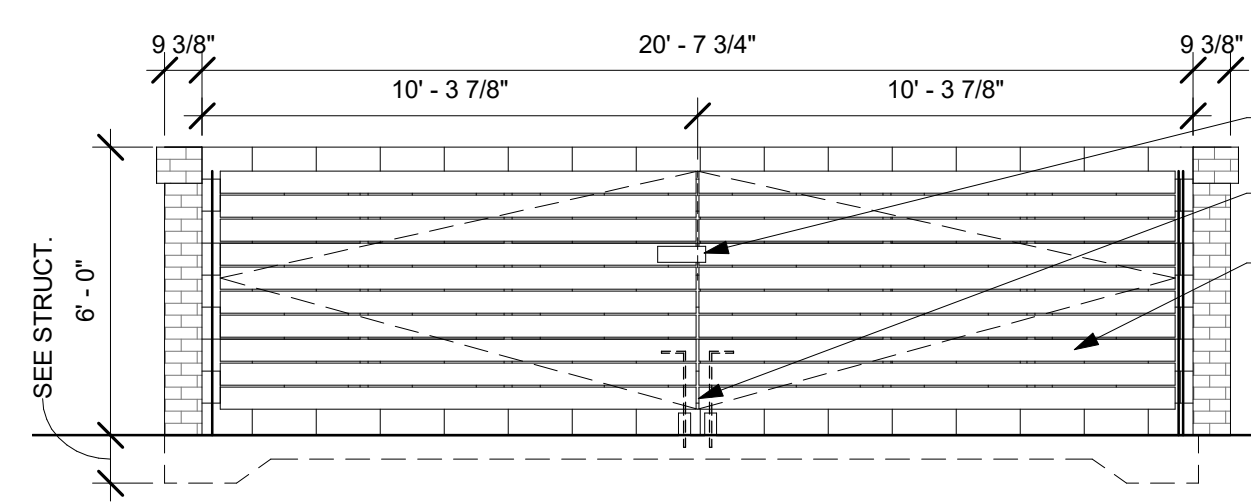
18 BUILDING SIGN 1
SCALE: 1/4" = 1'-0"



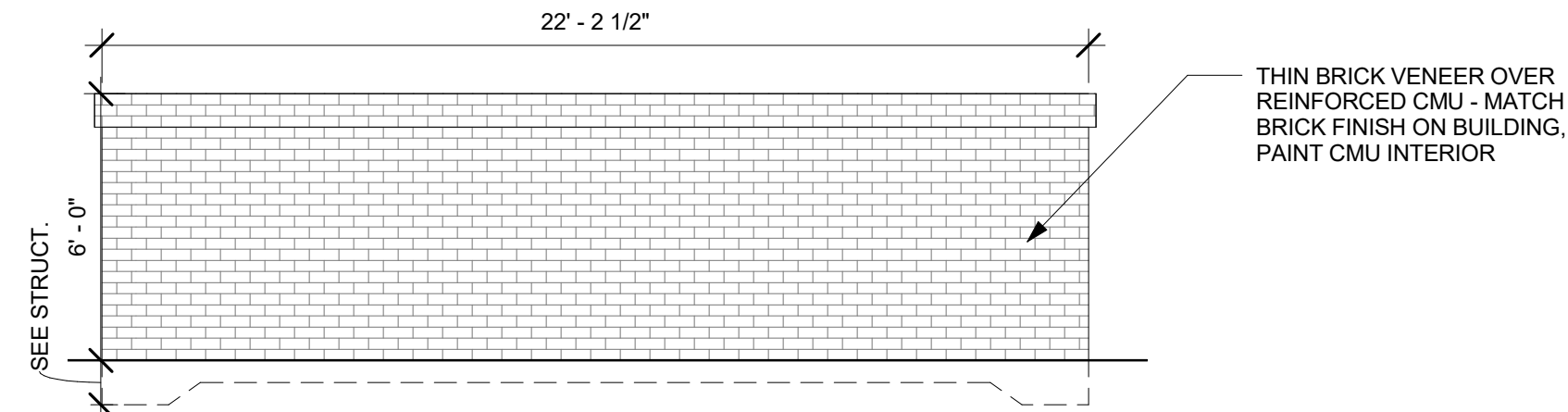
20 BUILDING SIGN 2
SCALE: 1/4" = 1'-0"



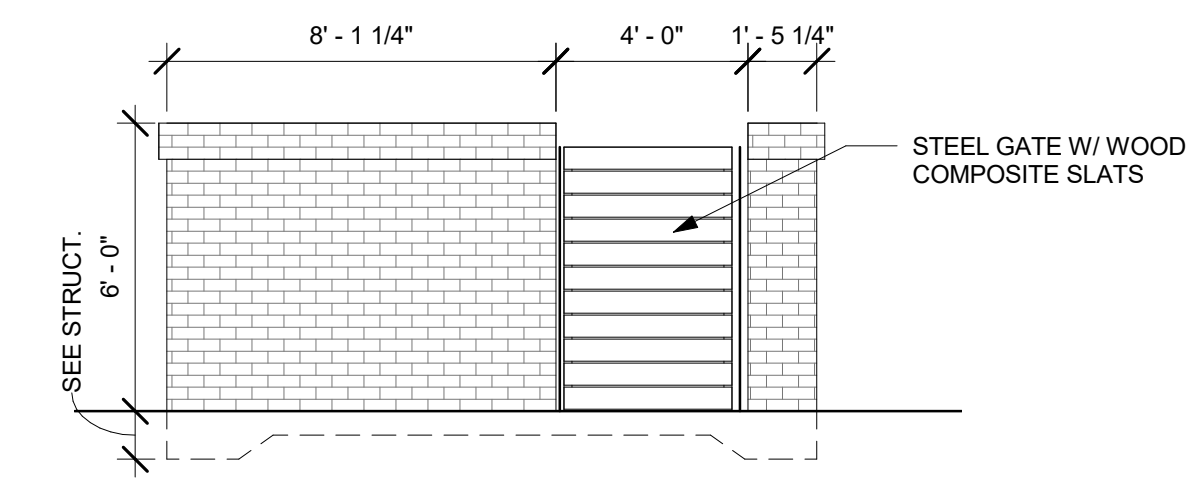
1 ENLARGED PLAN - TRASH ENCLOSURE
SCALE: 1/4" = 1'-0"



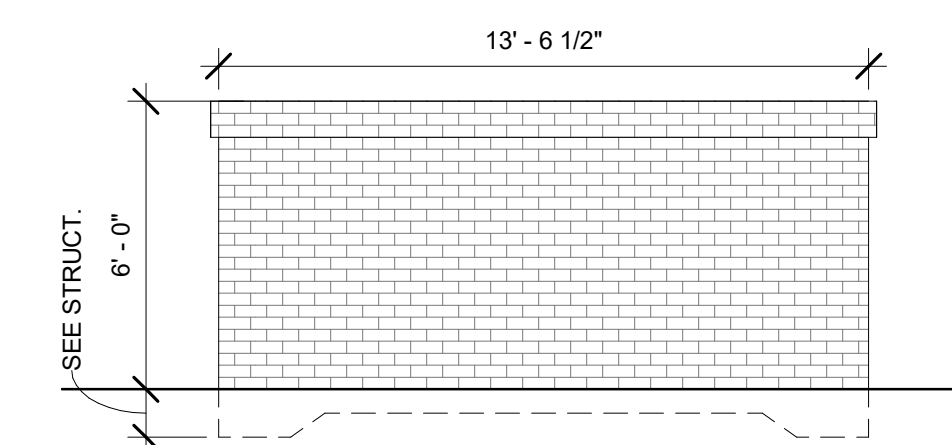
2 TRASH ENLCOSURE - NE ELEVATION
SCALE: 1/4" = 1'-0"



3 TRASH ENLCOSURE - SW ELEVATION
SCALE: 1/4" = 1'-0"

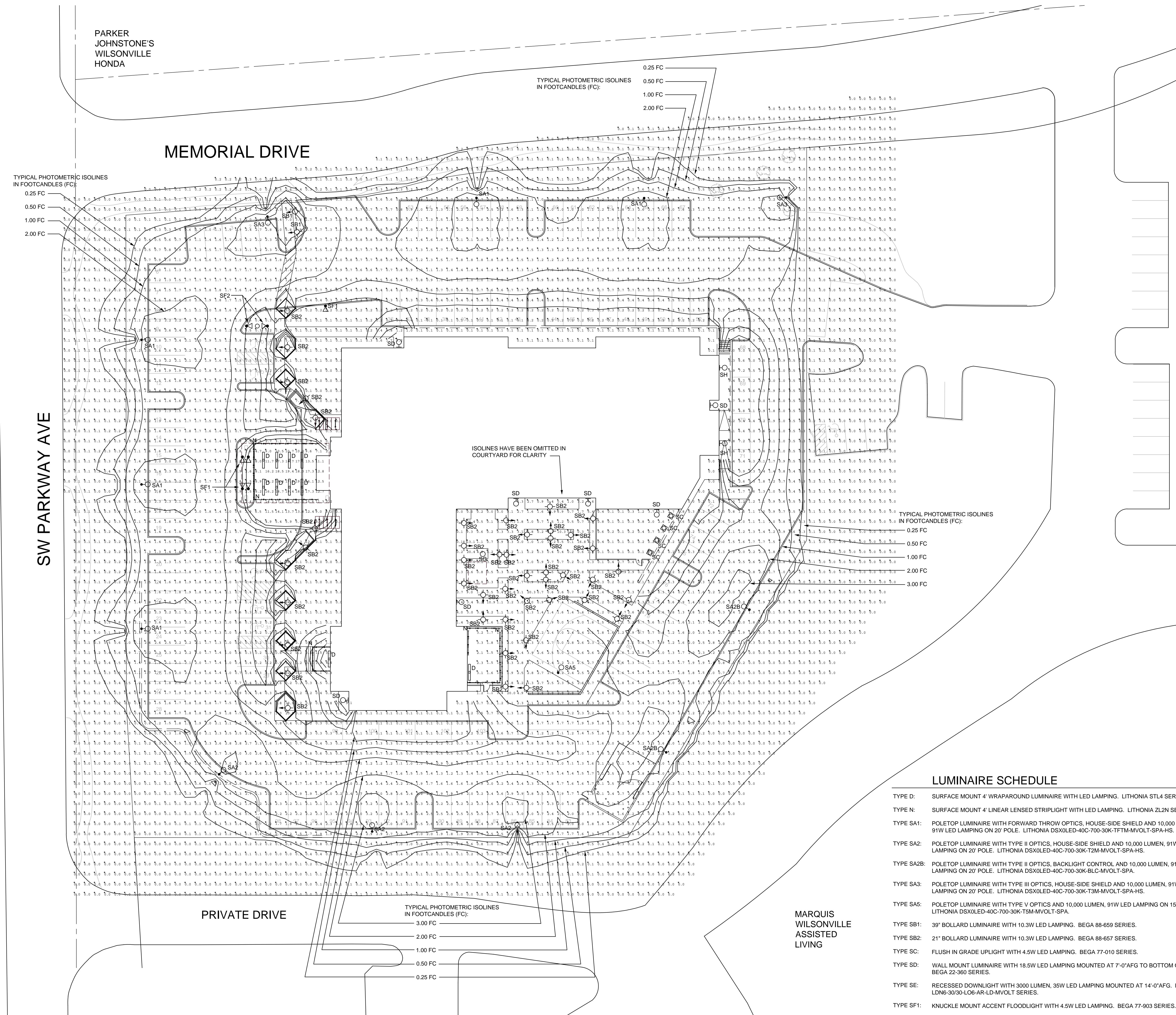


4 TRASH ENLCOSURE - NW ELEVATION
SCALE: 1/4" = 1'-0"



5 TRASH ENLCOSURE - SE ELEVATION
SCALE: 1/4" = 1'-0"





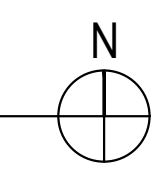
LUMINAIRE SCHEDULE

- TYPE D: SURFACE MOUNT 4' WRAPAROUND LUMINAIRE WITH LED LAMPING. LITHONIA STL4 SERIES.
- TYPE N: SURFACE MOUNT 4' LINEAR LENSED STRIPLIGHT WITH LED LAMPING. LITHONIA ZL2N SERIES.
- TYPE SA1: POLETOP LUMINAIRE WITH FORWARD THROW OPTICS, HOUSE-SIDE SHIELD AND 10,000 LUMEN, 91W LED LAMPING ON 20' POLE. LITHONIA DSXLED-40C-700-30K-TFTM-MVOLT-SPA-HS.
- TYPE SA2: POLETOP LUMINAIRE WITH TYPE II OPTICS, HOUSE-SIDE SHIELD AND 10,000 LUMEN, 91W LED LAMPING ON 20' POLE. LITHONIA DSXLED-40C-700-30K-T2M-MVOLT-SPA-HS.
- TYPE SA2B: POLETOP LUMINAIRE WITH TYPE II OPTICS, BACKLIGHT CONTROL AND 10,000 LUMEN, 91W LED LAMPING ON 20' POLE. LITHONIA DSXLED-40C-700-30K-BLC-MVOLT-SPA.
- TYPE SA3: POLETOP LUMINAIRE WITH TYPE III OPTICS, HOUSE-SIDE SHIELD AND 10,000 LUMEN, 91W LED LAMPING ON 20' POLE. LITHONIA DSXLED-40C-700-30K-T3M-MVOLT-SPA-HS.
- TYPE SA4: POLETOP LUMINAIRE WITH TYPE V OPTICS AND 10,000 LUMEN, 91W LED LAMPING ON 15' POLE. LITHONIA DSXLED-40C-700-30K-T5M-MVOLT-SPA.
- TYPE SB1: 39" BOLLARD LUMINAIRE WITH 10.3W LED LAMPING. BEGA 88-659 SERIES.
- TYPE SB2: 21" BOLLARD LUMINAIRE WITH 10.3W LED LAMPING. BEGA 88-657 SERIES.
- TYPE SC: FLUSH IN GRADE UPLIGHT WITH 4.5W LED LAMPING. BEGA 77-010 SERIES.
- TYPE SD: WALL MOUNT LUMINAIRE WITH 18.5W LED LAMPING MOUNTED AT 7'-0" AFG TO BOTTOM OF FIXTURE. BEGA 22-360 SERIES.
- TYPE SE: RECESSED DOWNLIGHT WITH 3000 LUMEN, 35W LED LAMPING MOUNTED AT 14'-0" AFG. LITHONIA LDN6-30/30-LOE-AR-LD-MVOLT SERIES.
- TYPE SF1: KNUCKLE MOUNT ACCENT FLOODLIGHT WITH 4.5W LED LAMPING. BEGA 77-903 SERIES.
- TYPE SF2: KNUCKLE MOUNT FLAG SPOTLIGHT WITH 4.5W LED LAMPING. BEGA 77-903 SERIES.
- TYPE SG: SURFACE MOUNT CYLINDER DOWNLIGHT WITH 9.2W LED LAMPING MOUNTED AT 8'-6" AFG. BEGA 66 056 SERIES.
- TYPE SH: WALL MOUNT LUMINAIRE WITH 50W, 6100 LUMEN LED LAMPING MOUNTED AT 20' AFG. LITHONIA WST-LED-P3-30K-VV-MVOLT.

SYMBOL LEGEND

- POLETOP LUMINAIRE
- ⊙ BOLLARD LUMINAIRE, ARROW INDICATES DIRECTIONALITY
- ⊞ FLUSH-IN-GRADE LUMINAIRE
- DOWNLIGHT
- ⊞ WALL BRACKET LUMINAIRE
- ⊞ STANCHION MOUNT FLOODLIGHT
- ▬ 4' WRAPAROUND LUMINAIRE
- 4' LENSED STRIP

1 SITE PHOTOMETRIC PLAN
 1" = 20'-0"



REVISIONS:

PROJECT NO.
 16027
 06.23.2017

SITE PHOTOMETRIC
 PLAN

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DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 11, 2017

6:30 PM

VII. Board Member Communications:

A. Results of the July 24, 2017 DRB Panel B meeting

City of Wilsonville

Development Review Board Panel B Meeting Meeting Results

DATE:	JULY 24, 2017	
LOCATION:	29799 SW TOWN CENTER LOOP EAST, WILSONVILLE, OR	
TIME START:	7:35 P.M.	TIME END: 7:57 P.M.

ATTENDANCE LOG

BOARD MEMBERS	STAFF
Shawn O'Neil	Daniel Pauly
Richard Martens	Barbara Jacobson
Aaron Woods	Kim Rybold
Samuel Scull	

AGENDA RESULTS

AGENDA	ACTIONS
CITIZENS' INPUT	None.
CONSENT AGENDA	None.
PUBLIC HEARING	
<p>A. Resolution No. 338. Annexation of 63rd Avenue Right-of-Way: West Linn-Wilsonville School District—Owner/Applicant. The applicant is requesting approval of an Annexation of 2,206 square feet of territory on the south side of Advance Road at SW 63rd Avenue. The subject property is specifically known as an eastern portion of Tax Lot 2100 of Section 18, Township 3 South, Range 1 East, Willamette Meridian, Clackamas County, Oregon. Staff: Kimberly Rybold</p> <p>Case Files: DB17-0019 Annexation</p> <p><i>The DRB action on the Annexation is a recommendation to the City Council.</i></p>	<p>A. Unanimously approved as proposed.</p>
BOARD MEMBER COMMUNICATIONS	
<p>A. Results of the July 10, 2017 DRB Panel A meeting</p> <p>B. Recent City Council Action Minutes</p>	<p>A. Update on the Villebois Parks application and skate park, which is under construction.</p> <p>B. Update on Subaru provided by the City Attorney.</p>
STAFF COMMUNICATIONS	None.

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 11, 2017

6:30 PM

- VII. Board Member Communications:
 - B. Results of the August 28, 2017 DRB Panel B meeting

City of Wilsonville

Development Review Board Panel B Meeting Meeting Results

DATE: AUGUST 28, 2017		TIME END: 8:46 P.M.
LOCATION: 29799 SW TOWN CENTER LOOP EAST, WILSONVILLE, OR		
TIME START: 6:30 P.M.		

ATTENDANCE LOG

BOARD MEMBERS	STAFF
Shawn O’Neil	Daniel Pauly
Richard Martens	Charles Tso
Aaron Woods	Mike Ward
Samuel Scull	Barbara Jacobson
Samy Nada (arrived late)	

AGENDA RESULTS

AGENDA	ACTIONS
CITIZENS’ INPUT	None.
CONSENT AGENDA	
A. Approval of minutes of the June 26, 2017 meeting	A. Approved 4-0.
PUBLIC HEARING	
<p>A. Resolution No. 339. Coca Cola Parking: TreCore Construction Management LLC – Applicant for Swire Coca Cola - Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Removal Plan for the addition of a parking area for approximately 23 passenger vehicle spaces at the southeast corner of Barber Street and Kinsman Road. The site is located on Tax Lot 103 of Section 14C, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Daniel Pauly</p> <p>Case Files: DB17-0021 Stage II Final Plan Revision DB17-0022 Site Design Review DB17-0023 Type C Tree Removal Plan</p>	A. Approved 4-0.
<p>B. Resolution No. 340. Villebois Piazza Temporary Use Permit (TUP): Rudy Kadlub, Costa Pacific Communities – Applicant for RCS Villebois Development – Owner. The applicant is requesting approval of a Class 3 Temporary Use Permit for existing mailboxes, one coffee cart and potentially up to six food carts in the future. The subject site is located at the Villebois Piazza on Tax Lots 101, 102 and 2800 of Section 15AC, T3S, R1W, Clackamas County, Oregon. Staff: Charles Tso</p> <p>Case File: DB17-0024 Class III Temporary Use Permit</p>	B. The resolution and staff report were amended to reflect approval for the mailboxes and coffee cart only, removing the request for up to six additional food carts. Approved 5-0.

<p>C. Resolution No. 341. Marion’s Carpet Warehouse: Bob Schatz, Allusa Architecture – Applicant for Bergaso Properties – Owner. The applicant is requesting approval of a Stage I Preliminary Plan, Stage II Final Plan, Setback Waiver, Site Design Review, Class 3 Sign Permit and Type C Tree Plan for construction of a tilt-up slab warehouse with retail space on SW Boones Ferry Road. The subject property is located on Tax Lot 1300 of Section 14A, T3S, R1W, Clackamas County, Oregon. Staff: Kimberly Rybold</p> <p>Case Files: DB17-0001 Stage I Preliminary Plan DB17-0002 Stage II Final Plan Revision DB17-0003 Setback Waiver DB17-0004 Site Design Review DB17-0005 Class 3 Sign Permit DB17-0006 Type C Tree Removal Plan</p>	<p>C. Approved as presented 5-0.</p>
<p>BOARD MEMBER COMUNICATIONS</p>	
<p>A. Recent City Council Action Minutes</p>	
<p>STAFF COMMUNICATIONS</p>	<p>None.</p>

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 11, 2017

6:30 PM

- VII. Board Member Communications:
 - C. Recent City Council Action Minutes

City Council Meeting Action Minutes July 17, 2017

COUNCILORS	STAFF	STAFF
Mayor Knapp	Bryan Cosgrove	Angela Handran
Councilor Starr	Barbara Jacobson	Jon Gail
Councilor Akervall - Excused	Jeanna Troha	Eric Mende
Councilor Stevens	Kimberly Veliz	Chris Neamtzu
Councilor Lehan – Left at 8:07 p.m.	Susan Cole	Dwight Brashear
	Nancy Kraushaar	Steve Adams
	Delora Kerber	Amanda Guile-Hinman

AGENDA ITEM	ACTIONS
WORK SESSION	
<ul style="list-style-type: none"> Public Engagement Through Social Media Garden Acres Road PSA 	<ul style="list-style-type: none"> Staff provided a presentation on how social media is being used to boost outreach and two-way communication with the community. Staff presented an update on the Garden Acres Road project. Council addressed under the consent agenda.
REGULAR MEETING	
<u>Mayor's Business</u> <ul style="list-style-type: none"> Fun In the Park Proclamation 	<ul style="list-style-type: none"> The Mayor read the proclamation declaring August 1-7, Is 'Fun In the Park Week' and presented certificates to the Fun in the Park Committee.
<u>Communications</u> <ul style="list-style-type: none"> 2016-17 Community Enhancement Program Project Report: Multifamily Community Waste-Reduction and Recycling Project Sponsored by Clackamas County, City, and Republic Services. 	<ul style="list-style-type: none"> Tenille Beseda with Clackamas County Resource Conservation & Solid Waste Program and Kayla Scheafer with AmeriCorps provided a presentation on Multifamily Community Waste-Reduction and Recycling.
<u>Consent Agenda</u> <ul style="list-style-type: none"> Resolution No. 2648 - A Resolution Of The City Of Wilsonville Authorizing The City Manager To Execute A Professional Services Agreement With HHPR, Inc. For Design, Acquisition Support, And Construction Phase Support Services Associated With The Garden Acres Road Project (CIP No. 4201). Minutes of the June 5, 2017 and June 19, 2017 Council Meetings. 	<ul style="list-style-type: none"> The Consent Agenda was adopted 4-0.
<u>Continuing Business</u> <ul style="list-style-type: none"> Ordinance No. 806 - An Ordinance Of The City Of Wilsonville Amending The Text Of The Comprehensive Plan, The Comprehensive Plan Map, The Wilsonville Development Code, And The Significant Resource Overlay Zone Map, And 	<ul style="list-style-type: none"> Ordinance No. 806 was adopted on second reading by a vote of 3-0.

<p>Adopting The Frog Pond West Master Plan As A Sub-Element Of The Comprehensive Plan.</p>	
<p><u>New Business</u></p> <ul style="list-style-type: none"> • Resolution No. 2647 - A Resolution Of The City Of Wilsonville Authorizing The Police And Public Works Building Seismic Upgrade Project And The Execution Of The Seismic Rehabilitation Grant Program Grant Contract With Oregon Infrastructure Finance Authority Of The Business Development Department. • Subaru Appeal of Community Development Director Decision 	<ul style="list-style-type: none"> • Resolution 2647 was adopted 4-0. • Council moved to deny the appeal 3-0.
<p><u>City Manager's Business</u></p>	<ul style="list-style-type: none"> • No report.
<p><u>Legal Business</u></p>	<ul style="list-style-type: none"> • No report.
<p><u>Adjourn</u></p>	<p>9:30 p.m.</p>

City Council Meeting Action Minutes
August 7, 2017

COUNCILORS	STAFF	STAFF
Mayor Knapp	Bryan Cosgrove	Mark Ottenad
Councilor Starr	Barbara Jacobson	Chris Neamtzu
Councilor Akervall - Excused	Jeanna Troha	Andy Stone
Councilor Stevens	Kimberly Veliz	Jordan Vance
Councilor Lehan	Susan Cole	Kimberly Rybold
	Nancy Kraushaar	Kerry Rappold
	Delora Kerber	Tod Blankenship
	Angela Handran	Daniel Pauly
	Amanda Guile-Hinman	

AGENDA ITEM	ACTIONS
WORK SESSION	
<ul style="list-style-type: none"> • Fiber Business Plan (staff – Stone) • Coffee Creek Industrial Form-based Code and Pattern Book (staff-Rybold) • Memorial Park Dog Park/Community Garden Parking Lot (staff – Rappold / Blankenship) • Frog Pond Financing Plan (staff – Kraushaar/Cole/Guile-Hinman) 	<ul style="list-style-type: none"> • Andy Stone, It Manager along with Tom Asp of Columbia Telecommunications Corporation (CTC) presented on the Fiber Business Plan. Staff requested Council direction on whether the City should move forward with Fiber Business Plan. Council directed staff to move forward. • The Coffee Creek Industrial Form-based Code and Pattern Book was presented by staff and consultants. The presentation delivered a project update along with paths to adoption and policy options. • Kerry Rappold, Natural Resources Manager and Tod Blankenship, Parks Supervisor gave a presentation on the Memorial Park Dog Park/Community Garden Parking Lot project. An overview of the project, additional work and next steps were provided. • Staff began presentation on Frog Pond Financing Plan. Due to time constraints staff completed presentation during the Council meeting.
REGULAR MEETING	
<u>Communications</u>	
<ul style="list-style-type: none"> • Metro Update 	<ul style="list-style-type: none"> • Metro Councilor Craig Dirksen presented a regional snapshot.
<u>Mayor's Business</u>	
<ul style="list-style-type: none"> • Relay For Life Proclamation (Staff – Handran) 	<ul style="list-style-type: none"> • The Mayor read a proclamation declaring the 17th day of August as “Wilsonville

<ul style="list-style-type: none"> • Reappointments • Upcoming Meetings 	<p>Relay For Life Day” and presented a proclamation to the Relay For Life Committee.</p> <ul style="list-style-type: none"> • Library Board Reappointment of Caroline Berry to for a second term beginning 7/1/17 to 6/30/21. <p>Tourism Promotion Committee Reappointments of Jeff Brown (Position 3) and Albert Levit (Position 4) for a second term beginning 7/1/17 to 6/30/20.</p> <ul style="list-style-type: none"> • The Mayor reported on the meetings he attended on behalf of the City. <p>Mayor Knapp announced the Monday, August 21, City Council meeting has been rescheduled for Thursday, August 24.</p>
<p><u>Public Hearing</u></p> <ul style="list-style-type: none"> • Ordinance No. 807 – 1st Reading An Ordinance Of The City Of Wilsonville Annexing Approximately 2,206 Square Feet Of Territory On The South Side Of SW Advance Road West Of SW 63rd Avenue Into The City Limits Of The City Of Wilsonville, Oregon. The Territory Is More Particularly Described As An Eastern Portion Of Tax Lot 2100 Of Section 18, T3S, R1W, Clackamas County, Oregon, West Linn-Wilsonville School District, Owner. (staff – Rybold) 	<ul style="list-style-type: none"> • Ordinance No. 807 was approved on first reading with second reading occurring at the August 24 Council meeting.
<p><u>New Business</u></p> <ul style="list-style-type: none"> • Resolution No. 2649 - A Resolution Of The City Of Wilsonville Establishing The Methodology For The Preliminary Frog Pond West Infrastructure Supplemental Fee And The Boeckman Bridge Transportation Mitigation Fee, And Establishing A Fund (staff – Kraushaar/Cole/Guile-Hinman) • Resolution No. 2650 - A Resolution Of The City Of Wilsonville Designating The City Of Wilsonville As A Bee City Usa® Affiliate (staff – Rappold) • Appeal of Planning Director’s Interpretation – Jordan Ward (staff – Neamtzu) 	<ul style="list-style-type: none"> • Resolution No. 2649 was adopted 4-0. • Resolution No. 2650 was adopted 4-0. • Rescheduled for the September 18, 2017 Council meeting.
<p><u>City Manager’s Business</u></p> <ul style="list-style-type: none"> • Work Plan Updates Quarter 2 Work Plan 2017-2018 	<ul style="list-style-type: none"> • The City Manager supplied Council with Work Plan Updates for Quarter 2 and the Work Plan for 2017-2018.

<u>Legal Business</u> <ul style="list-style-type: none">• Regulation of Panhandling and Related Constitutional Limitations	<ul style="list-style-type: none">• The City Attorney supplied Council with a memorandum regarding Regulation of Panhandling and Related Constitutional Limitations.
Adjourn	9:50 p.m.