MEYERS ROAD EXTENSION ALTERNATIVES BASELINE CONDITIONS REPORT

Prepared for

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JUNE 2015

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INTRODUCTION

This memorandum summarizes the inventory of existing conditions within the study area. The existing conditions assessment is divided into the following sections:

- Key Considerations: This section provides a matrix with key considerations, by topic, to help inform the conceptual alternatives development process.
- Land Use Analysis: This section reviews existing land uses and development in the study area and regional and local plans and designations.
- Transportation Analysis: This section assesses the existing multimodal transportation network and reviews planned projects in the study area. Appendix A includes a Traffic Operations Technical Memorandum with more detail regarding traffic operations in the study area.
- Environmental Analysis: This section provides an overview of natural resources in the study area including information based on site visit reconnaissance by the project Ecologist, April 27, 2015.

DESIGN CONSIDERATIONS SUMMARY MATRIX

This memo identifies baseline resource information from a "visual windshield validation" perspective derived from plans, a site visit, and web sources and from Stakeholder Meetings and interviews (included in Appendix A). Additional detailed studies may be needed for potential design constraints such as for hazardous materials and archaeological resources of specific areas to determine design limitations for specific proposed projects. In addition, the baseline data identifies several other land use and environmental conditions that could potentially be affected by transportation improvements.

Table 1 summarizes the primary design considerations applied when developing alternatives based on existing conditions. These consideration areas are also reviewed in more depth in subsequent sections of this memorandum and in the appendices, as applicable.

Table 1. Existing Conditions Key Considerations

Topic	Description	Key Considerations
Transportation Facilities - Oregon City TSP & RTP		
Road Classification/Cross Section	• Meyers Road – Industrial Arterial • Loder Road – Industrial Collector • Both roads planned local truck routes	• Cross section standards
Alignment Location	• Varies from TSP, RTP, CCC Plan, OCSD	• Consistency across plans
Intersections	• Planned roundabout Meyers and Loder Road	• Intersection type and use of road
Bike/Ped Connections	• Planned shared use path along Loder Road • Park trail facilities connections • CCC trail connections	• Trail connectivity and crossings.
Transit	• Future transit facilities as part of CCC	• Potential for future transit access and stops
Land Use		
Zoning	• Most of area is zoned campus industrial. CCC and Park are institutional. Adjacent residential zoning of varying densities.	• Parcel fragmentation and future development potential of parcels for larger uses.
Comprehensive Plan	• Mostly consistent with zoning except high school area is designated public/semipublic.	• Parcel fragmentation and future development potential of parcels for economic development.
CCC Master Plan	• The concept plan establishes a framework for future development, and focuses on infrastructure. The concept plan extends through 2020. • Adopted by Oregon City in 2008 (Section 17.65.050 of development code)	• Meyers Road proposed extension alignment. • Parking access • Stormwater improvements • Future transit center • Vehicular circulation route • Master Plan boundary
OCSD Transportation and Maintenance Facility	• Proposed facility on the school district property. • Development application submitted	• Cross section and alignment consistency with other plans. • Development timing • Bus accommodations
Glen Oak Park	• Approximately 9 acre park planned.	• Meyers road alignment and master plan coordination • Pedestrian and bicycle connections coordination
Powerline	• BPA corridor runs through project area with powerlines, towers, and easements.	• Easement issues? • Tower placement.

Environmental		
Wetlands	A string of wetlands runs diagonal northwest to southeast through site.	• Impacts to wetlands will likely require JPA. Impacts to buffer regulated under NROD. Both require mitigation.
Streams	According to FEMA maps, no floodplains associated with streams in project area.	• Impacts to any water resource buffers are regulated under NROD and may require mitigation.
Habitat/Species	Trees and wetlands likely provide habitat and wildlife corridors and connectivity.	• Data still being collected on species in project area.
Floodplain	No FEMA mapped floodplains	• None.
Hazmat	Permitted hazmat generator sites and underground storage tanks in project vicinity.	• None at this phase of project. Future project phases should conduct detailed hazmat survey.
Geologic	No areas of concern according to OC webmaps.	• None at this phase of project.

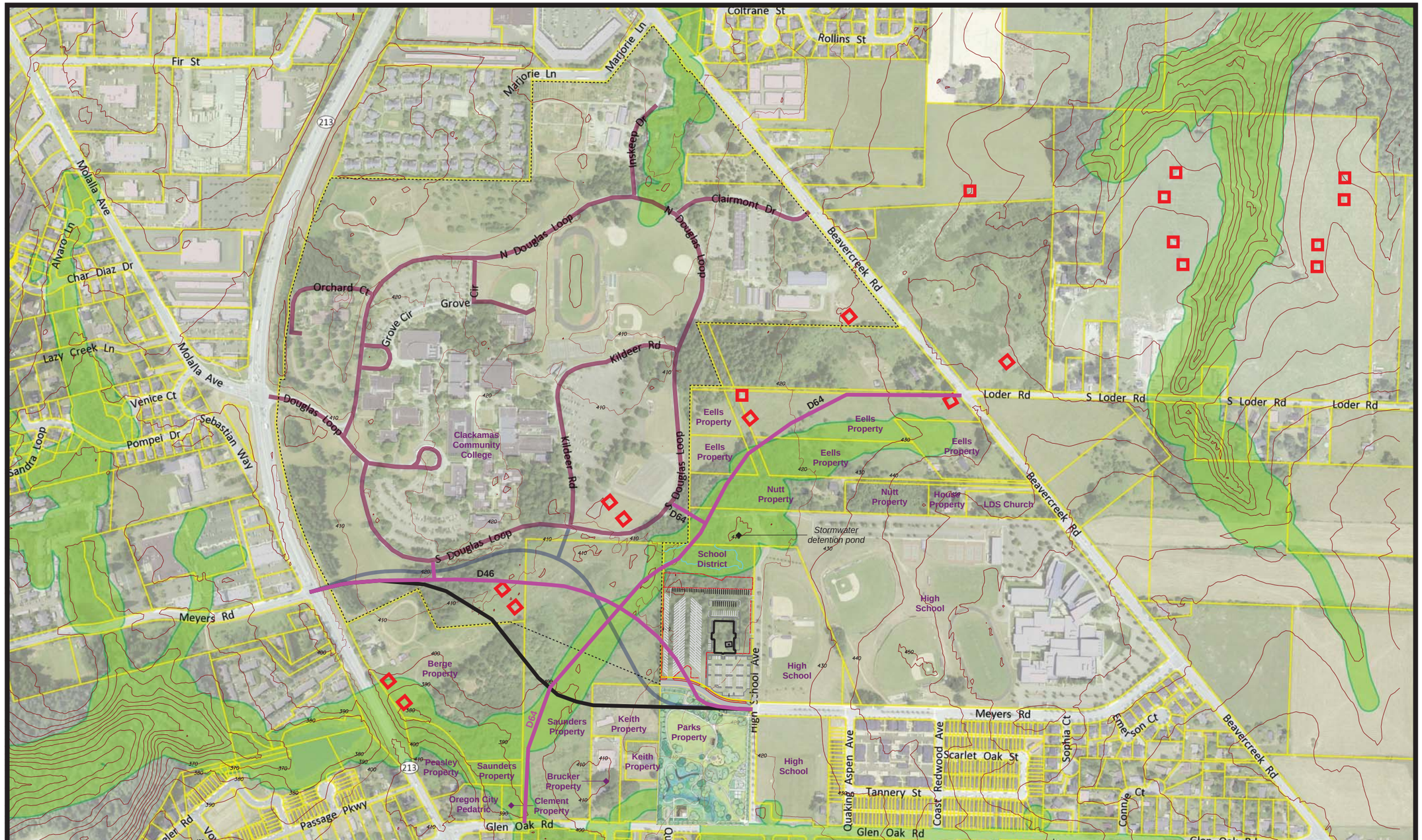
LAND USE ANALYSIS

EXISTING LAND USES

The project area is close to the southern edge of the Portland Metropolitan UGB in Oregon City, in the Caufield Neighborhood Association area. The project area generally encompasses the area south- southeast of Clackamas Community College between S Beavercreek Road and OR 213 and north of Glen Oak Road (See Figure 1, Existing Conditions Map). The area north of the Community College and northwest of OR 213 includes auto dependent commercial uses a subdivision south of the commercial area and a nursery and John Inskeep Environmental Learning Center south of the commercial area to the east. Clackamas Community College (CCC) is south of the subdivision.

South of CCC, in the area that Meyers Road would extend through, a BPA corridor approximately 200 feet wide bisects the project area. The rest of the immediate area where Meyers Road would extend is mostly rural residential uses that are on lots that are largely undeveloped. One of the lots grows Christmas trees. Oregon City high school is just southeast of CCC and includes a large area for sports fields east of High School Road. The Oregon City School District is planning on developing the lot west of the high school and High School Road as a bus facility shown on Figure 1. Glen Oak Park will be developed south of the bus facility. Figure 2 generally reflects the existing nature of development in the project area and vacant lands.

A medium-density residential subdivision is south of the high school and residences are also the primary use south of Glen Oak. Oregon City Golf Club is east of Beaver Creek Road south of Meyers Road. The area east of Beaver Creek Road is generally undeveloped although the Beavercreek Road Concept Plan outlines a vision for development of the area with a mix of land uses. The area west of OR 213 within the UGB is largely developed with residential development.



Data on this map is derived from multiple sources including but not limited to the City of Oregon City online webmaps, the City of Oregon City Transportation System Plan (TSP) (Effective 8/16/2013), Clackamas Community College (CCC) Master Plan (Approved 6/23/2008), and the Oregon City School District (OCSD) Transportation and Maintenance Facility improvement plans. This information was developed at multiple scales and accuracies. No warranty is made with this map. This map is for informational purposes only and is not suitable for legal, engineering, or surveying purposes.

Legend

- Transportation System Plan (Street Extensions)
- Regional Transportation Plan (Projects)
- Clackamas Community College Master Plan Alignment (6/23/2008)
- Clackamas Community College Master Plan Vehicular Circulation Routes (6/23/2008)
- D# Transportation System Plan Project Number
- Powerline Tower
- Natural Resource Overlay District
- Clackamas Community College Master Plan Boundary (6/23/2008)

Meyers Road Extension Alternatives

Figure 1. Existing and Planned Conditions Map

May 27, 2015

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DAVID EVANS AND ASSOCIATES INC.

OREGON CITY

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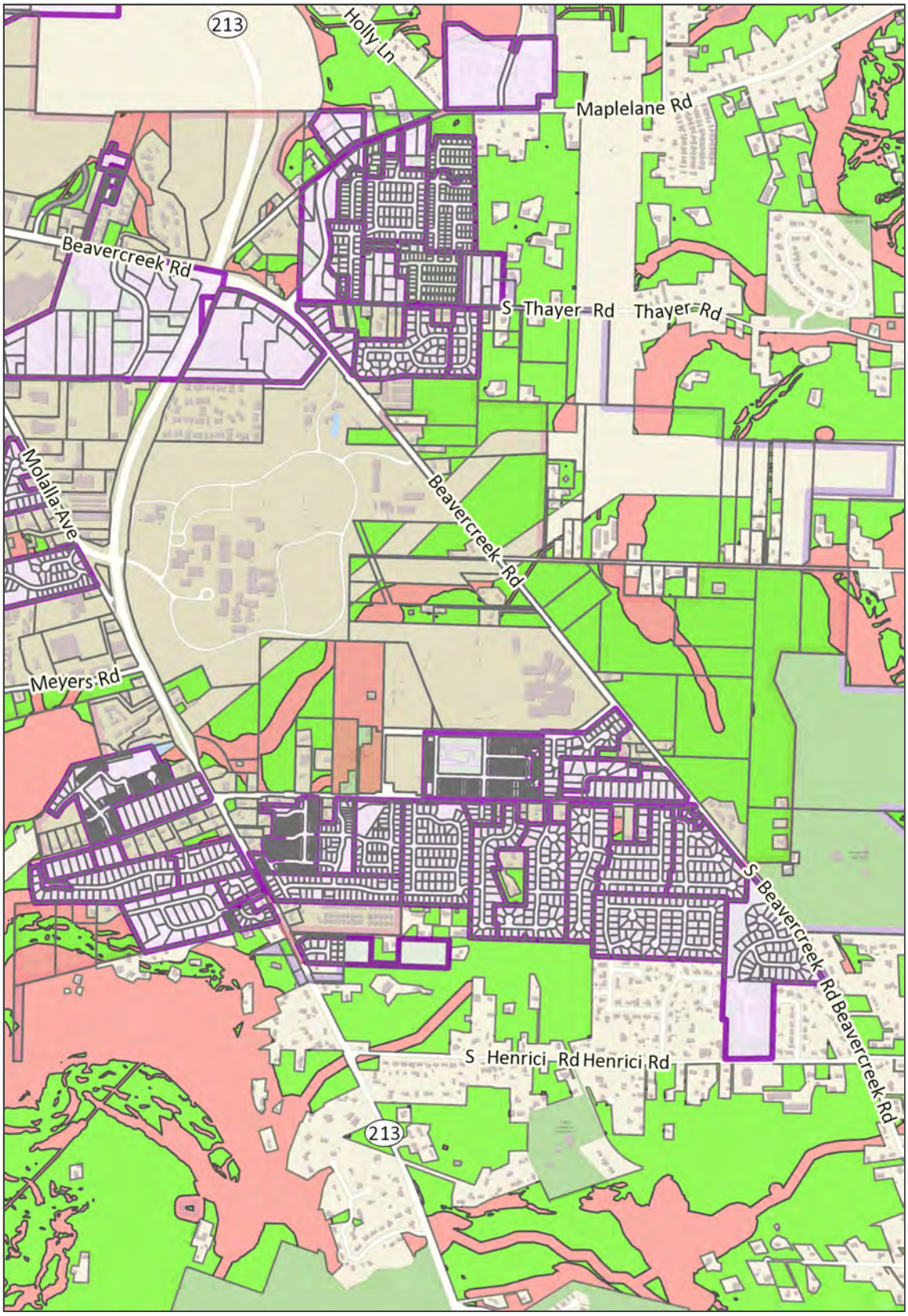
Figure 2. OR City GIS Vacant Lands Map



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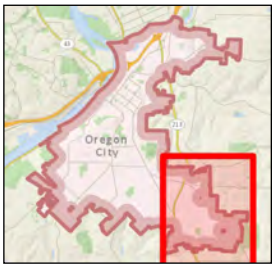
- Taxlots
- Unimproved ROW
- Subdivisions
- Vacant Lands - Constrained
- Vacant Lands - Unconstrained
- City Limits
- UGB
- Basemap

Notes

Overview Map



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Map created 4/25/2015

REGIONAL PLANNING

The 2040 Growth Concept is a long-range plan growth management plan for the Portland metropolitan area that was adopted by the Metro Council in 1995. Policies in the 2040 Growth Concept include and encourage:

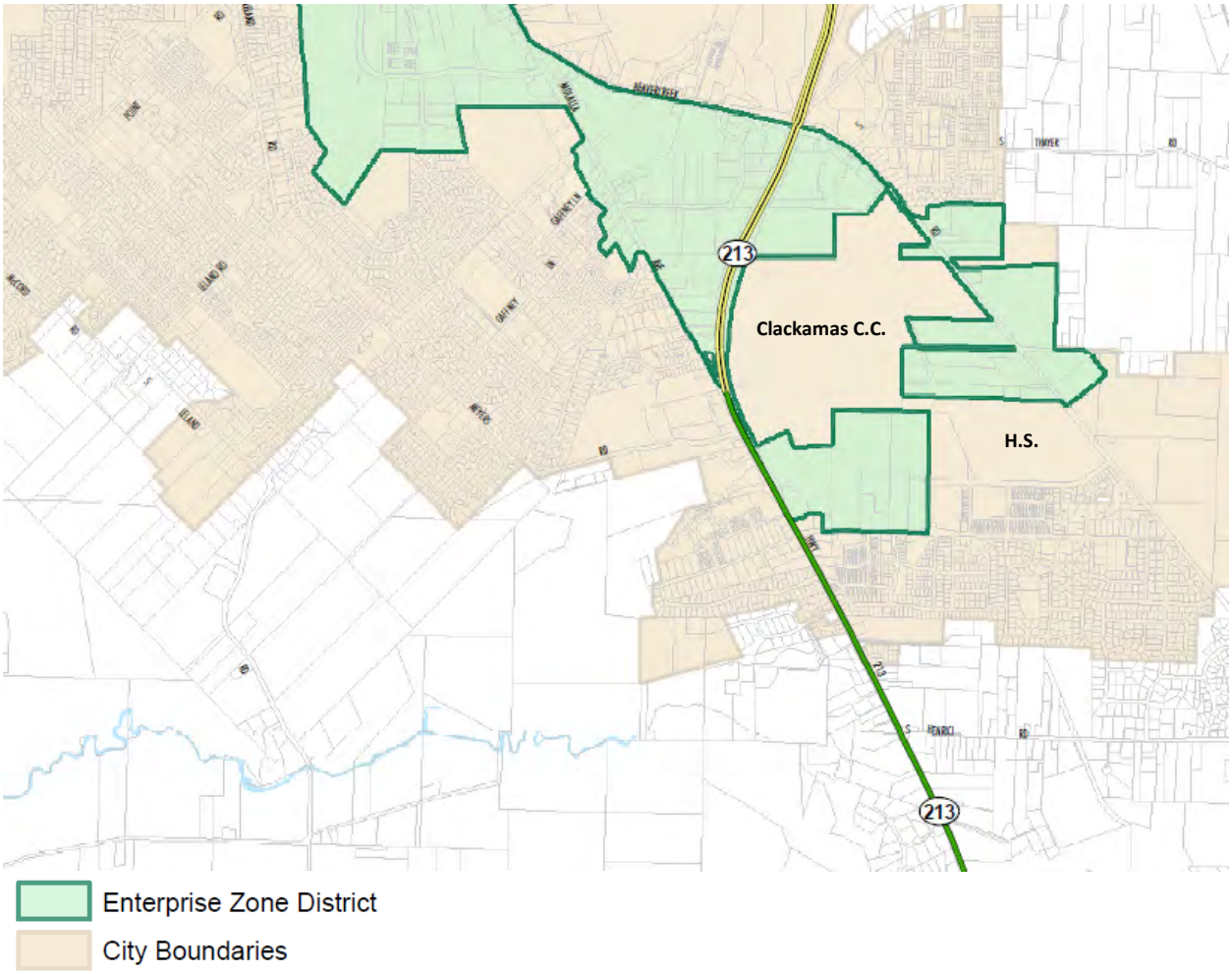
- safe and stable neighborhoods for families
- compact development that uses land and money efficiently
- a healthy economy that generates jobs and business opportunities
- protection of farms, forests, rivers, streams and natural areas
- a balanced transportation system to move people and goods
- housing for people of all incomes in every community.

The project area is designated as an Employment land area on the Metro 2040 Growth Concept Map (September 2014). The Urban Growth Management Functional Plan (Section 3.07 of the Metro Code) provides tools to meet goals of the 2040 Growth Concept. Title 4 provides provisions for protection of industrial and other employment areas by limiting the types and scale of non-industrial uses and provide provisions to encourage the benefits of "clustering" to those industries that operate more productively and efficiently in proximity to one another than in dispersed locations. Additionally, Title 4 seeks to protect the capacity and efficiency of the region's transportation system for the movement of goods and services.

ENTERPRISE ZONE

The state of Oregon designated portions of the project area as an Enterprise Zone in December 2014 (shown on Figure 3 below). The primary purpose of the Enterprise Zone is to stimulate new investments that create jobs and advance economic development. This designation provides incentives to businesses to invest in relocating, expanding, or starting a new business in the area. Cities that establish enterprise zones can temporarily abate taxes on businesses' capital investments for companies located within the zones. Eligible new investments within the Zone can be exempted from property taxes for a period of three years, and up to five years.

Figure 3. Oregon City Enterprise Zone District



Source: Clacakams County Geogrphic Informatin Systems.

CITY OF OREGON CITY COMPREHENSIVE PLAN

Oregon City's Comprehensive Plan provides a vision for the future growth and development of the city. This vision is based on the following principles:

- Promote sustainability and sustainable development.
- Contain urban development.
- Promote redevelopment.
- Protect natural resources.
- Foster economic vitality.

- Provide efficient and cost-effective services.
- Ensure a sense of history and place.

The Plan is broken up into sections which include goals and policies to guide implementation of the plan. Some of the key sections and goals for the project area are identified below; all applicable goals and policies are too lengthy to include herein, but will be considered as the project advances: Goals and policies:

Section 1 Citizen Involvement

Goal 1.2 Community and Comprehensive Planning

Ensure that citizens, neighborhood groups, and affected property owners are involved in all phases of the comprehensive planning program.

Goal 2.6 Industrial Land Development

Ensure an adequate supply of land for major industrial employers with family wage jobs.

Section 5

Open Spaces, Scenic and Historic Areas, and Natural Resources

Goal 5.4 Natural Resources

Identify and seek strategies to conserve and restore Oregon City's natural resources, including air, surface and subsurface water, geologic features, soils, vegetation, and fish and wildlife, in order to sustain quality of life for current and future citizens and visitors, and the long-term viability of the ecological systems.

Section 12 Transportation

Goal 12.1 Land Use-Transportation Connection

Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Goal 12.3 Multi-Modal Travel Options

Develop and maintain a transportation system that provides and encourages a variety of multi-modal travel options to meet the mobility needs of all Oregon City residents.

Most of the project area is designated on the Comprehensive Plan map as Industrial except for CCC and the Oregon City High School which are designated as Public Facility. Glen Oak Park is

designated as a Park. There areas designated high density residential along Glen Oak, and OR 213 west, industrial east of Beavercreek Road to the City Limits.

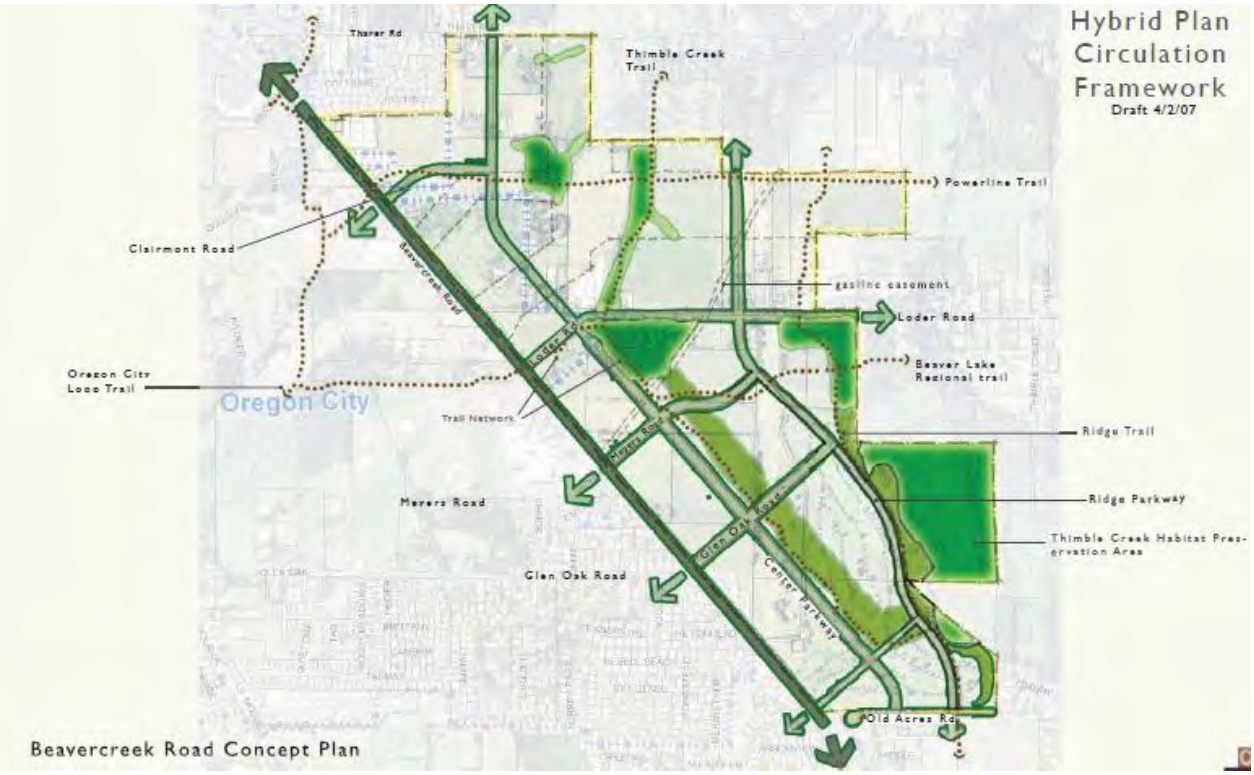
BEAVER CREEK ROAD CONCEPT PLAN

The Beavercreek Road Concept Plan covers an area just west of the project area. It provides a development framework for a community with a diverse mix of uses (an employment campus north of Loder Road, mixed use districts along Beavercreek Road, mixed use neighborhoods, and transit-oriented land uses) connected by open space, trails, and a network of green streets. Most of the 453-acre Concept Area site along Beavercreek Road was added to the regional urban growth boundary by Metro in 2002 and 2004. In general, the key concepts of the plan are:

- A complete mix of land uses;
- Policy support for employment and program connections with Clackamas Community College;
- Sustainability strategies;
- A trail framework that traverses all sub-districts and connects to city and regional trails;
- A street framework that provides for a logical and connected street pattern, parallel routes to Beavercreek Road, and connections at Clairmont, Meyers, Glen Oak, and the southern entrance to the site; and
- A draft Beavercreek Road Zone development code to implement the plan.

Although the Beaver Creek Road plan boundary is west of Beaver Creek Road, it identifies key travel corridors such as Loder Road, Meyers Road and trails, which connect to and influence the project area to connect with the College.

Figure 4. Circulation Framework



Source Beavercreek Road Concept Plan

The Concept Plan considers future transit that will support the area, but not a specific transit plan. However, three options were identified for future transit service in the Beavercreek area as excerpted below:

1. A route modification is made to existing bus service to Clackamas Community College (CCC) that extends the route through CCC to Beavercreek Road via Clairmont, then south to Meyers or Glen Oak, back to HWY 213, and back onto Molalla to complete the normal route down to the Oregon City Transit Center. To date, CCC has identified Meyers Road as a future transit connection to the college.

2. A new local loop route that connects to the CCC transit center and serves the Beavercreek Road Concept Plan area, the High School, the residential areas between Beavercreek and OR 213, and the residential areas west of OR 213 (south of Warner Milne).

3. A new "express" route is created from the Oregon City Transit Center, up/down OR 213 to major destinations (CCC, the Beavercreek Road Employment area, Red Soils, Hilltop Shopping Center, etc.).

OREGON CITY MUNICIPAL CODE

The Oregon City Municipal Code is a compilation of the applicable ordinances (rules, regulations or standards) of the municipality. Although development must be consistent with all sections of the code, only those most pertinent for the Meyers Road Extension Alternatives project are reviewed herein. A Pre Application meeting will be held with the Community Development Department to determine specific land use permitting requirements.

TITLE 12 - STREETS, SIDEWALKS AND PUBLIC PLACES

This section of the municipal code guides construction and implementation of streets, sidewalks and public places consistent with the TSP. The following sections are most applicable to Meyers Road at this stage of the design:

12.04.007 - Modifications. : This provides a process to make changes to roadways if at the time of design, they do not fit the context. An example of a design change would be reducing maximum design standards through a Type II review.

12.04.170 - Street design – Section 12.04.265: Provides the parameters for design based on the roadway classification as well as standards for access, pedestrian and bicycle safety, and mobility standards.

TITLE 17 ZONING

The zoning code purpose is *"...to promote public health, safety and general welfare through standards and regulations designed to provide adequate light and air; to secure safety from fire and other dangers; to lessen congestion in the streets; to prevent the overcrowding of land; to assure opportunities for effective utilization of land; to provide for desired population densities; and to facilitate adequate provision for transportation, public utilities, parks and other provisions set forth in the Oregon City Comprehensive Plan and the Oregon Land Conservation and Development Commission Statewide Planning Goals."*

The following sections of the zoning code are most applicable in considerations for developing alternatives for Meyers Road.

Chapter 17.04 - Definitions

17.04.1312 - Transportation facilities.

"Transportation facilities" shall include construction, operation, and maintenance of travel lanes, bike lanes and facilities, curbs, gutters, drainage facilities, sidewalks, transit

> *stops, landscaping, and related improvements located within rights-of-ways controlled by a public agency, consistent with the City Transportation System Plan.*
>
> *TRANSPORTATION FACILITIES ARE TO BE IDENTIFIED AS A PERMITTED USE IN ALL ZONING DESIGNATIONS WITH THE ADDITION OF THE FOLLOWING CODE SECTIONS:...*

Most of the area that Meyers Road would extend through is zoned Campus Industrial (CI) *(17.37* (See Figure 5). There is no minimum lot size in the CI zone *(17.37.040.A).* The purpose of the zone is described below.

> *The campus industrial district is designed for a mix of clean, employee-intensive industries, and offices serving industrial needs. These areas provide jobs that strengthen and diversify the economy. The uses permitted on campus industrial lands are intended to improve the region's economic climate and to protect the supply of sites for employment by limiting incompatible uses within industrial and employment areas and promoting industrial uses, uses accessory to industrial uses, offices for industrial research and development and large corporate headquarters.*

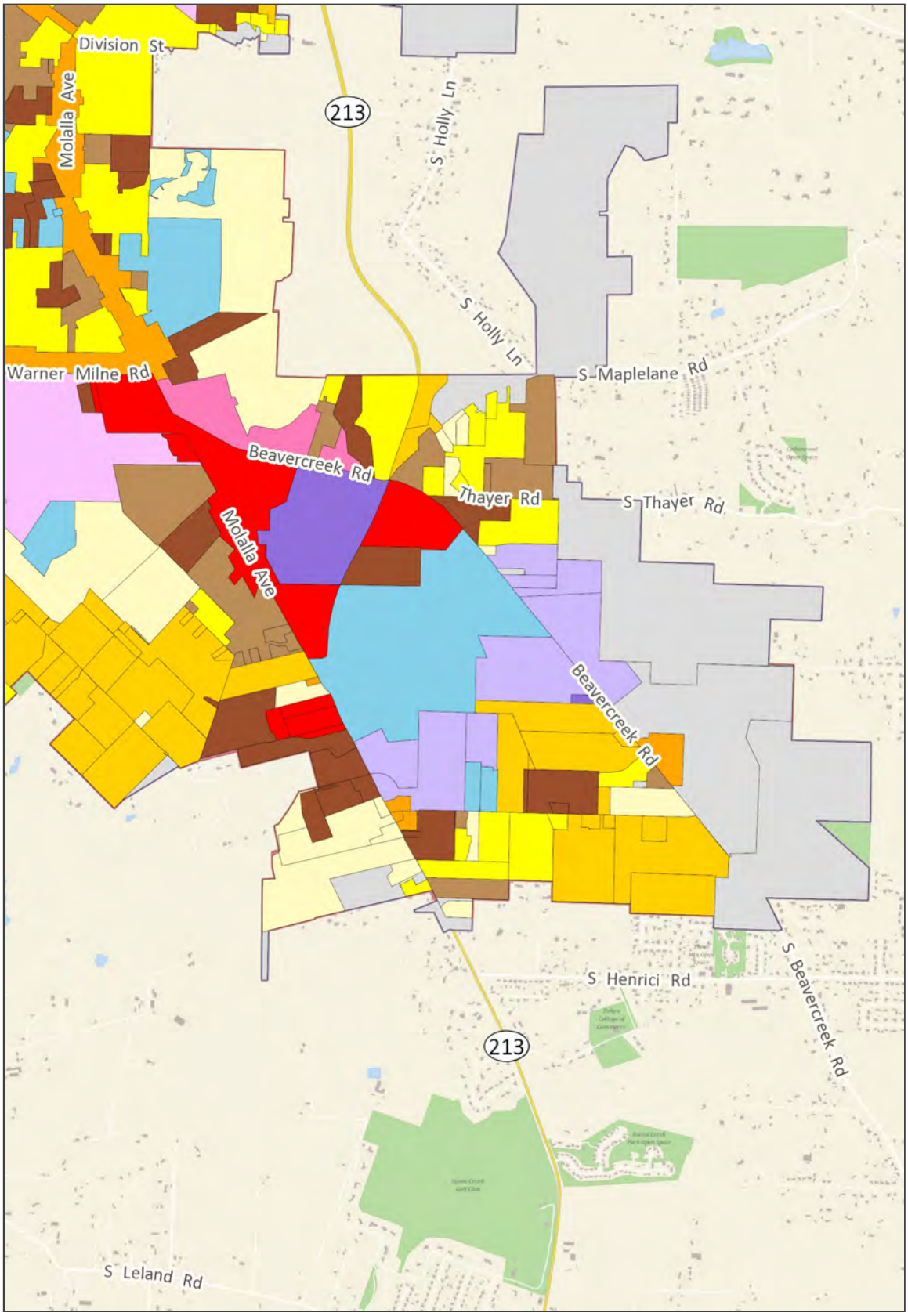
CCC, Glen Oak Park, and the Oregon School District Bus Facility are all Zoned Institutional 17.39. The main purpose of this district is

> *to facilitate the development of major public institutions, government facilities and parks and ensure the compatibility of these developments with surrounding areas. The Institutional zone is consistent with the public/quasi public and park designations on the comprehensive plan map.*

There is residential zoning of varying densities nearby, but not in the path of the Meyers Road extension alternatives. A natural resource overlay district (NROD) area bisects the Meyers Road extension area from northeast to southwest. The boundary generally follows a string of wetlands as reviewed in the Environmental section. The purpose of the NROD (Chapter 17.49) is:

> *The Natural Resource Overlay District designation provides a framework for protection of Metro Titles 3 and 13 lands, and Statewide Planning Goal 5 resources within Oregon City. The Natural Resource Overlay District (NROD) implements the Oregon City Comprehensive Plan Natural Resource Goals and Policies, as well as Federal Clean Water Act requirements for shading of streams and reduction of water temperatures, and the recommendations of the Metro ESEE Analysis. It is intended to resolve conflicts between development and conservation of habitat, stream corridors, wetlands, and floodplains identified in the city's maps...*

Figure 5. City of Oregon City Zoning



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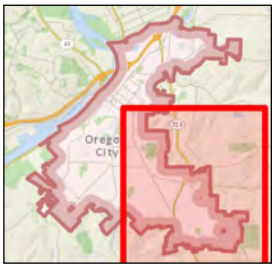
Zoning

ZONE

- R-10 - Single Family Dwelling
- R-8 - Single Family Dwelling
- R-6 - Single Family Dwelling
- RC-4 - McLoughlin Conditiona
- RD4-MDP - Manufactured Dw
- R-3.5 - Medium Density Resic
- R-2 - Multi-Family Dwelling
- C - General Commercial
- MUC-2 - Mixed Use Corridor
- MUC-1 - Mixed Use Corridor
- LO - Limited Office
- NC - Neighborhood Commerc
- HC - Historic Commercial
- WFDD - Willamette Falls Dow
- MUD - Mixed Use Downtown
- MUE - Mixed Use Employmer
- GI - General Industrial
- CI - Campus Industrial
- I - Institutional
- FU-10 - County Zoning
- County
- City Limits
- UGB
- Basemap

Notes

Overview Map



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Map created 4/9/2015

Roads and creek crossings are allowed in the NROD under prescribed conditions pursuant to a Type II process (Section 17.49.060) and mitigation. Mitigation for vegetated corridor impacts occurs at two-to-one ratio of mitigation area for disturbance area. (17.49.180 - Mitigation standards) If there is an area designated as NROD that may not have a resource, a verification can be processed by either a Type I or Type II process.

GLEN OAK PARK MASTER PLAN

Glen Oak Park Master Plan is a plan for an approximately 9-acre public park between Glen Oak and Meyers Road adjacent to the Meyers Road extension The master plan identifies 15 on-street parking spaces across from the Oregon School District Bus Facility on Meyers Road and access to a parking lot off of Meyers Road with 24 parking spaces. There are also stormwater planting and swales along Meyers Road. There will also be a small parking lot with 5 spaces along Glen Oak Road. The plan provides a concrete pathway network to provide bicycle and pedestrian access from Meyers Road to Glen Oak Road. Other features of the park include an: open lawn area; play area; basketball court; skate spot; and natural area with a boardwalks and wildlife viewing overlook, wetland and stream (Caufield Creek) planting areas.

OREGON CITY SCHOOL DISTRICT BUS FACILITY

The Oregon City School District has submitted a development application for the construction of a new Transportation Maintenance Facility and associated vehicle parking and sitework adjacent to the Meyers Road extension. The facility is a permitted use in the Campus Industrial (CI) zone. Per the development application, the project includes:

- New offices, shop areas and support facilities for the School District's Transportation and Maintenance Departments. The total building area equals 30,525 square feet.
- Parking for Staff and Visitors: 138 spaces including 5 accessible spaces will be provided. Larger and Mid-Size Bus Parking: 96 spaces for standard size buses will be provided. Small Buses, Vans and Miscellaneous Maintenance Vehicles: 96 (plus 6 after hour driver) spaces for small buses, vans and other maintenance vehicles (mowers, etc.) will be provided.
- Fencing: The bus/van/equipment storage compound area (illustrated on accompanying Site Plan) shall be fenced for security purposes. Proposed fencing is 8 feet high to provide effective security and Applicant requests allowance of the use of black vinyl coated cyclone fencing and gates. (Cyclone fencing currently is used around the perimeter of the adjacent Oregon City High School Site.)

- Off-Site Improvements in the Public Right-of-Way: A partial extension of Meyers Road is proposed as indicated on the attached Site Plans. Configuration of the extension will be coordinated with the City Parks Department which owns the neighboring property to the south. Lot line adjustments at the south end of the site will be required to create the public right-of-way for this extension.

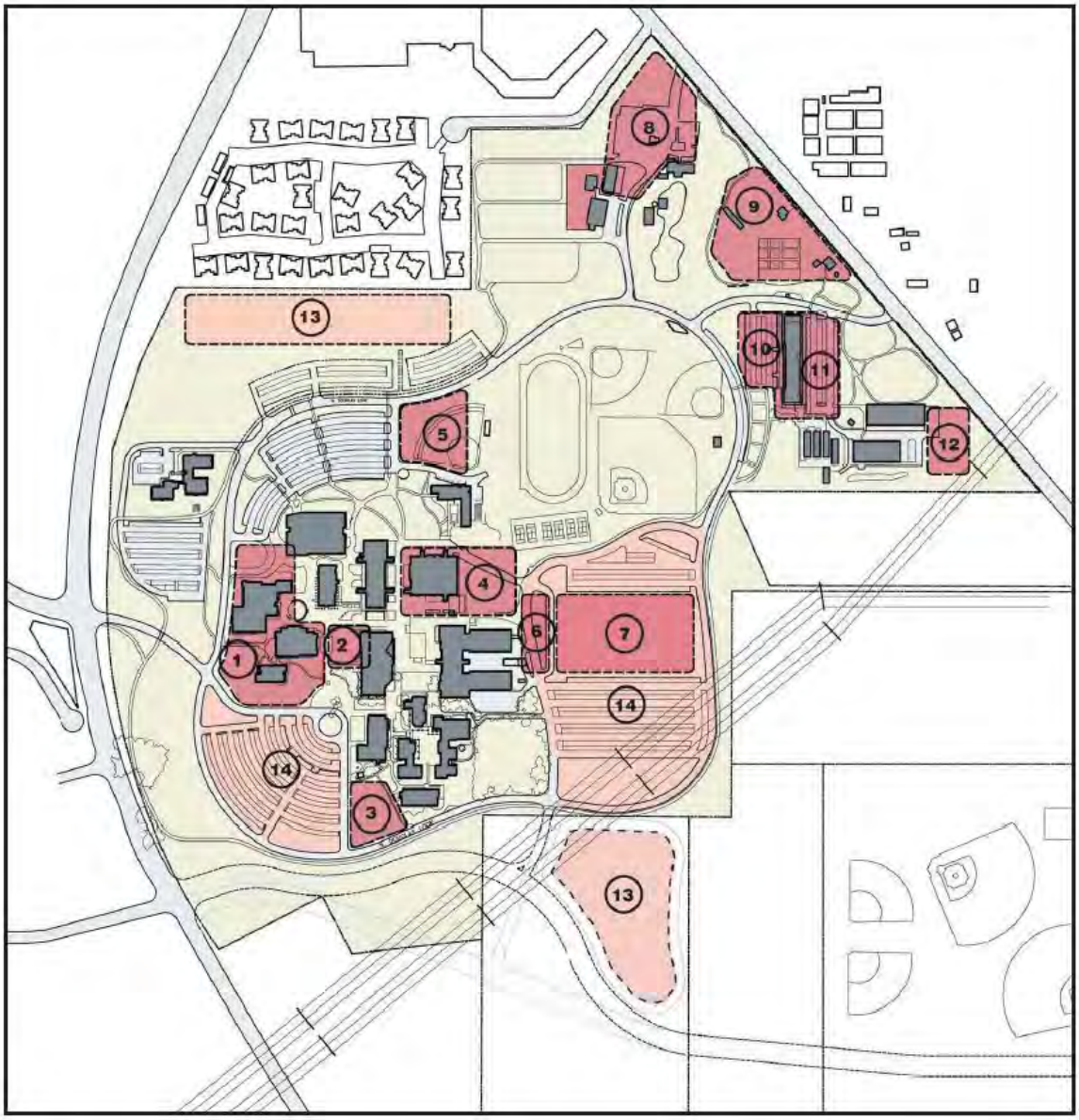
- The storm water management system for site runoff will be complete including storm detention areas.

CLACKAMAS COMMUNITY COLLEGE MASTER PLAN (CP 07-01)

On June 23, 2008 the Oregon City Planning Commission approved CP 07-01, a "Concept Development Plan" (Section 17.65.050) for the college that extends through 2020, through a Type III public process. The plan is currently being updated and anticipated development and access plans may change. However, this Meyers Road extension project is being developed in coordination with CCC to maintain consistency.

The concept plan establishes a framework for future development of the CCC Oregon City campus which plans for long-term growth, and to addresses impacts of the growth will have on neighboring properties and public infrastructure. The master plan identifies: reconstruction and rehabilitation of the Environmental Learning Center area; physical infrastructure necessary to expand existing programs and to accommodate increasing enrollment. The master plan has planned for future college expansion of up to 300,000 additional square feet of floor space up to 2020. The potential future development and the parking and access areas identified in the plan are shown in Figure 6 and Figure 7 below. .

Figure 6. Areas of Potential Future Development at CCC



Area	Potential Future Development
1-5	Campus Core
6	Transit Hub
7	Parking Structure
8	E.L.C. and Maintenance Yard
9-12	Beavercreek Cluster
13	Athletic and Recreation Use
14	Parking and Stormwater Retention

Key transportation features of the CCC Master Plan are identified below in Figure 7.

Figure 7. Potential Future Access and Parking Improvements

Number	Potential Future Improvement
1	Meyers Road Extension
2	Potential New Campus Entry
3	Surface Parking Improvements
4	Multi-Story Parking Structure
5	Future Transit Center
6	Improved Pedestrian Connections

TRANSPORTATION SYSTEM ANALYSIS

Meyers Road is an important east-west corridor in the southern part of Oregon City. Its western terminus is at Leland Road and extends to the city's eastern urban growth boundary. Meyers Road is complete and fully developed between Leland Road and Oregon Highway 213. The segment between High School Avenue and Beavercreek Road is also fully developed. The following section provides a review of the transportation system in the project area. Additional details about the calculations of the intersection performance can be found in the Traffic Operations Technical Appendix B.

ROADWAY SUMMARY

The segment of Meyers Road between OR 213 and High School Avenue, which is subject of this study, is a planned project specified in the city's adopted Transportation System Plan (TSP). It is specified in the TSP as project D46. The segment of Meyers Road to the east of Beavercreek Road is also planned. The first short segment of this easterly extension of Meyers Road will be implemented by a developer as part of a recently-approved land use action.

The two most important north-south roadways in the southern part of Oregon City are OR 213 and Beavercreek Road. Meyers Road is one of two important east-west corridors in this part of the city, the other being Glen Oak Road. Glen Oak Road is parallel to Meyers Road, but terminates at Beavercreek Road and OR 213.

The jurisdiction, functional classification, street type, truck route designation, and important attributes of the major roadways in the study area are summarized in Table 2.

Table 2. Major Roadways in Study Area

Road	Jurisdiction	Functional Classification[1]	Street Type[2]	Local Truck Route[3]	Attributes
OR 213	ODOT	Major Arterial (classified as expressway north of Molalla Ave.)	Commercial, industrial and residential depending on location	Meyers Road to I-205	Four lanes to the north then transitions to two lanes with turn lanes to the south.
Beavercreek Road	Clackamas County	Major Arterial	Commercial, industrial, residential and mixed use depending on location	Fir Street to Meyers Road	Two lanes with turn lanes in most areas. Transitions to 3 lanes plus turn lanes north of Clairmont Drive and 4 lanes plus turn lanes north of S Maplelane Road.
Meyers Road	Oregon City	Minor Arterial	Commercial, industrial, residential and mixed use depending on location	OR 213 to Loder Road	Two lanes with bike lanes plus some left turn lanes west of Hwy 213; two-lane boulevard configuration between High School Avenue and Beavercreek Road. School zone designation east of High School Avenue.
Glen Oak Road	Oregon City	Collector	Mostly residential with sections of industrial and mixed use	No	Two lanes with turn lanes at three key intersections. Terminates at Beavercreek Road at the east. Terminates at OR 213 at the west, though Caufield Road extends about ¼ mile further to the west.

Road	Jurisdiction	Functional Classification[1]	Street Type[2]	Local Truck Route[3]	Attributes
High School Avenue	Oregon City	Collector	Residential south of Meyers Road; industrial to the north	No	The collector designation applies between Glen Oak Road and Meyers Road. North of Meyers Road it is classified as a local street.
Loder Road	Oregon City	Collector	Industrial from Beavercreek Road to Glen Oak Road; otherwise mostly residential	Glen Oak Road to Meyers Road extension (east, near urban growth boundary)	Two lanes east of Beavercreek Road; conceptual alignment shown in TSP for remainder of road.

[1] *Functional classification specified in Oregon City Transportation System Plan, Figure 8*
[2] *Street type specified in Oregon City Transportation System Plan, Figure 8*
[3] *Local truck route specified in Oregon City Transportation System Plan, Figure 11*

BICYCLISTS AND PEDESTRIANS

The table below indicates existing facilities and planned facilities based on standards in the Oregon City Transportation System Plan.

Table 3. Existing and Planned Facilities

Road	Existing Facilities	Planned Facilities
OR 213	Shoulder bike lanes	On-street bike lanes and sidewalks when upgraded to urban standards
Beavercreek Road	Shoulder bike lanes	On-street bike lanes and sidewalks when upgraded to urban standards
Meyers Road	On-street bike lanes and sidewalks in developed sections west of Hwy 213 and between Beavercreek Road and High School Ave	On-street bike lanes and sidewalks
Glen Oak Road	On-street bike lanes and sidewalks	On-street bike lanes and sidewalks
High School Avenue	Sidewalks on east side only	On-street bike lanes and sidewalks for collector segment; sidewalks in all locations
Loder Road	None currently	Planned shared use path parallel with Loder Road shown in TSP Figure 10

KEY STUDY AREA PROJECTS SPECIFIED IN THE TRANSPORTATION SYSTEM PLAN

The table below provides the basic description for key projects in the study area contained in the TSP.

Table 4. Key TSP Projects

TSP Proj. #	Project Description	Project Extent	Project Elements	Priority
D44	Beavercreek Road/Loder Road Extension Operational Enhancement	Beavercreek Road/Loder Road Extension	Install a roundabout	Short-term
D45	Meyers Road Extension/ Loder Road Extension Operational Enhancement	Meyers Road Extension/ Loder Road Extension	Install a single-lane roundabout	Short-term
D46	Meyers Road West extension	OR 213 to High School Avenue	Extend Meyers Road from OR 213 to High School Avenue as an Industrial Minor Arterial. Create a local street connection to Douglas Loop.	Short-term
D47	Meyers Road East extension	Beavercreek Road to the Meadow Lane Extension	Extend Meyers Road from Beavercreek Road to the Meadow Lane Extension as an Industrial Minor Arterial. Between the Holly Lane and Meadow Lane extensions, add a sidewalk and bike lane to the south side of the street, with a shared-use path to be added on north side per project S19. Modify the existing traffic signal at Beavercreek Road	Medium-term
D64	Loder Road Extension	Beavercreek Road to Glen Oak Road	Extend Loder Road from Beavercreek Road to Glen Oak Road as an Industrial Collector. Add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S18. Create a local street connection to Douglas Loop. Install a roundabout at Meyers Road (per project D45).	Short-term
S18	Loder Road Shared-Use Path	Glen Oak Road to Holly Lane Extension	Add a shared-use path on the south/east side of the Loder Road extension between Glen Oak Road and the Holly Lane extension.	Long-term
Source: TSP, Table 2: Likely to be Funded Transportation System				

KEY INTERSECTIONS IN STUDY AREA

For this study, six key intersections were identified where performance could be affected by the completion of Meyers Road between OR 213 and High School Avenue. These intersections and their attributes are summarized in the following table.

Table 5. Intersections in Study Area

Intersection	Traffic Control	Existing Configuration	Planned Configuration[1]
OR 213/ Molalla Ave/ Clackamas Community College Entrance	Signalized with protected left turn phases for all approaches	Four leg intersection	Four leg intersection
OR 213/ Meyers Road	Signalized with protected left turn phase for northbound approach	T-intersection (no westbound approach leg)	Four leg intersection (part of TSP Project D46)
OR 213/ Glen Oak Road/ Caufield Road	Signalized with protected left turn phases for north- and south-bound approaches	Four leg intersection	Four leg intersection
Beavercreek Road/ Loder Road	Stop-controlled for Loder Road	T-intersection with stop-control on minor street approach; single approach lane for Loder Road	Four leg intersection with roundabout (TSP projects D44 and D64)
Beavercreek Road/ Meyers Road	Signalized with protected left turn phase for northbound approach	T-intersection (no westbound approach leg)	Four leg intersection with left-lane and protected left turn phasing for all approaches (TSP Project D47)
Beavercreek Road/ Glen Oak Road	Stop-controlled for Glen Oak Road	T-intersection with stop-control on Glen Oak Road; separate left and right turn lanes on Glen Oak Road; northbound left turn lane on Beavercreek Road	Four leg intersection with roundabout (TSP Project D47)
Loder Road/ Meyers Road	Does not currently exist	Does not currently exist	Four leg intersection with roundabout (TSP Project D45)

[1] *Oregon City Transportation System Plan, June, 2013*

CITY OPERATIONAL STANDARD FOR INTERSECTIONS

Oregon City, Metro and the Oregon Department of Transportation base their operational standard for intersections on the volume-to-capacity (v/c) ratio. This allows for a systematic and quantifiable approach to evaluating intersection performance.

The City of Oregon City's mobility standard for intersections is specified in the Oregon City Municipal Code (OCMC) section 12.04.205. Because both OR 213 and Beavercreek Road are on the regional "Arterial and Throughway Network," all of the six key intersections in the study area are subject to the subpart B of that section of the code. It specifies that "a maximum v/c [volume-to-capacity] ratio of 0.99 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches."

EXISTING INTERSECTION PERFORMANCE

All six existing study area intersections have been shown to meet the adopted mobility performance standard. The performance of each of the six intersections has been analyzed using recent traffic counts performed for land development applications, the Transportation System Plan and other studies. The results are summarized in Table 5 below.

Table 6. Intersections Mobility Performance

Intersection	Mobility Standard	Calculated AM Peak Hour v/c	Calculated PM Peak Hour v/c
OR 213/ Molalla Ave/ Clackamas Community College Entrance	0.99	0.67	0.76
OR 213/ Meyers Road	0.99	0.77	0.55
OR 213/ Glen Oak Road/ Caufield Road	0.99	0.70	0.70
Beavercreek Road/ Loder Road	0.99	0.591	0.27[1]
Beavercreek Road/ Meyers Road	0.99	0.61	0.81
Beavercreek Road/ Glen Oak Road	0.99	0.42[2]	0.52[2]

[1] *v/c of northbound lane on Beavercreek Road at Loder Road*

[2] *v/c of northbound thru lane on Beavercreek Road at Glen Oak Road*

Additional details about the calculations of the intersection performance can be found in the Traffic Operations Technical Appendix A.

FUTURE CONDITIONS

Further analysis will be undertaken relating to development within the study area consistent with the city's comprehensive plan and applicable zoning. The establishment of a maintenance facility for the Oregon City School District's bus operation is among the anticipated developments in the study area. A land use action for that facility is currently pending as of April 2015. Various materials in support of the application including a Traffic Impact Study have been submitted and will be considered during the development of the Meyers Road Concept Plan.

ENVIRONMENTAL ANALYSIS

Potential natural resource-related permitting constraints within the various project alignments were analyzed at a reconnaissance level suitable for highlighting potential issues for each alternative and providing a fair comparison between alternatives. Review focused on streams, wetlands, riparian areas, and, potentially, upland habitats that may be regulated by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Oregon Department of Fish & Wildlife, Oregon Department of Environmental Quality, Oregon Department of State Lands, and/or Oregon City. A review of potential sensitive species and their habitats (aquatic and terrestrial), and this review will be supported by data from the Oregon Biodiversity Information Center (ORBIC) database. Research included a review of publicly-available datasets and mapping, including National and Local Wetland Inventory data and Oregon City Natural Resource Overlay District (NROD) maps. A site reconnaissance field visit was conducted on April 23, 2015 on public properties and on private properties, where permission was granted for site verification.

WILDLIFE HABITAT, WETLANDS AND WATERS

Wetland, upland, and waters habitats were mapped in the project area as shown on Figure 8. A discussion of each habitat type, whether it is regulated, and an avoidance priority recommendation is provided below[1].

Wetlands, Potential Wetlands, and Streams: Wetlands are typically regulated by the U.S. Army Corps of Engineers and the Oregon Department of State Lands. Regulations protecting wetlands require that impacts be avoided to the extent practicable. If impacts cannot be avoided, then they must be minimized and mitigated.

[1] REFERENCE "Oregon Department of Fish and Wildlife. 2006. Oregon Conservation Strategy. Oregon Department of Fish and Wildlife, Salem, Oregon."

Wetlands in the project area are shown on Figure 8 and are divided into delineated, recon, and potential categories. The delineated wetland has been formally delineated by Pacific Habitat Services (PHS) as part of the development proposal for a new Oregon City School District bus yard facility. This is a forested wetland dominated by Oregon ash and is of high quality due to the relatively low percent cover by non-native plants and a mature Douglas fir forest buffer. A pair of great horned owls was observed using the forested buffer area. A cacophony of bird songs was also noted, as well as deer and raccoon tracks. The wetland extends to the north and was mapped as "recon" were it extended beyond the study area for the PHS delineation and where site access was available for the Meyers Road reconnaissance visit. Further to the north the wetland was mapped as "potential" wetland where site access was not available, but conditions were observed from publicly accessible points. The distinction between "recon" versus "potential" wetland is that the "recon" designation carries a higher certainty that the feature would be considered a jurisdictional wetland since site access was available for direct observation and wetland indicators were very prominent. On the other hand, the "potential" wetland designation has a lower degree of certainty either because direct site access was not available or field indicators were marginal and additional formal delineation inspection is required to determine if the feature would qualify as a jurisdictional wetland. No stream was observed in this general location.

The above described wetlands are consistent with Local Wetland Inventory Mapping and the Oregon City NROD mapping. NROD mapping shows the wetlands and an associated drainage continuing to the southwest and joining with Caufield Creek. However, based on the April 2015 reconnaissance visit, there is no hydrologic surface connection between the above described wetlands and wetlands and creek mapped in the far southwest corner of the study area. The area between these two wetland areas is almost entirely upland, dominated by the non-native pasture and shrubland habitat described further, below. A few small potential wetland pockets were observed and a larger pasture wetland mapped as "recon" due to its more distinct wetland characteristics was also mapped. The small potential wetlands and recon wetlands within the larger area of upland non-native pasture and shrubland habitat are of low quality due to high presence of non-native species.

The large wetland area in the southwest corner of the study area is a relatively high quality Oregon ash and red alder forested wetland similar in character to the forest wetland in the northeast corner of the study area. It is also bordered by Douglas fir forest habitat. Caufield Creek flows through this wetland. Beaver activity was observed, in addition to deer and raccoon tracks. A small tributary to Caufield Creek was observed flowing out of a pipe along a fenceline that followed the edge of the wetland habitat and non-native pasture habitat. It is possible that a drainfield is situated in the pasture area and discharges from this pipe.

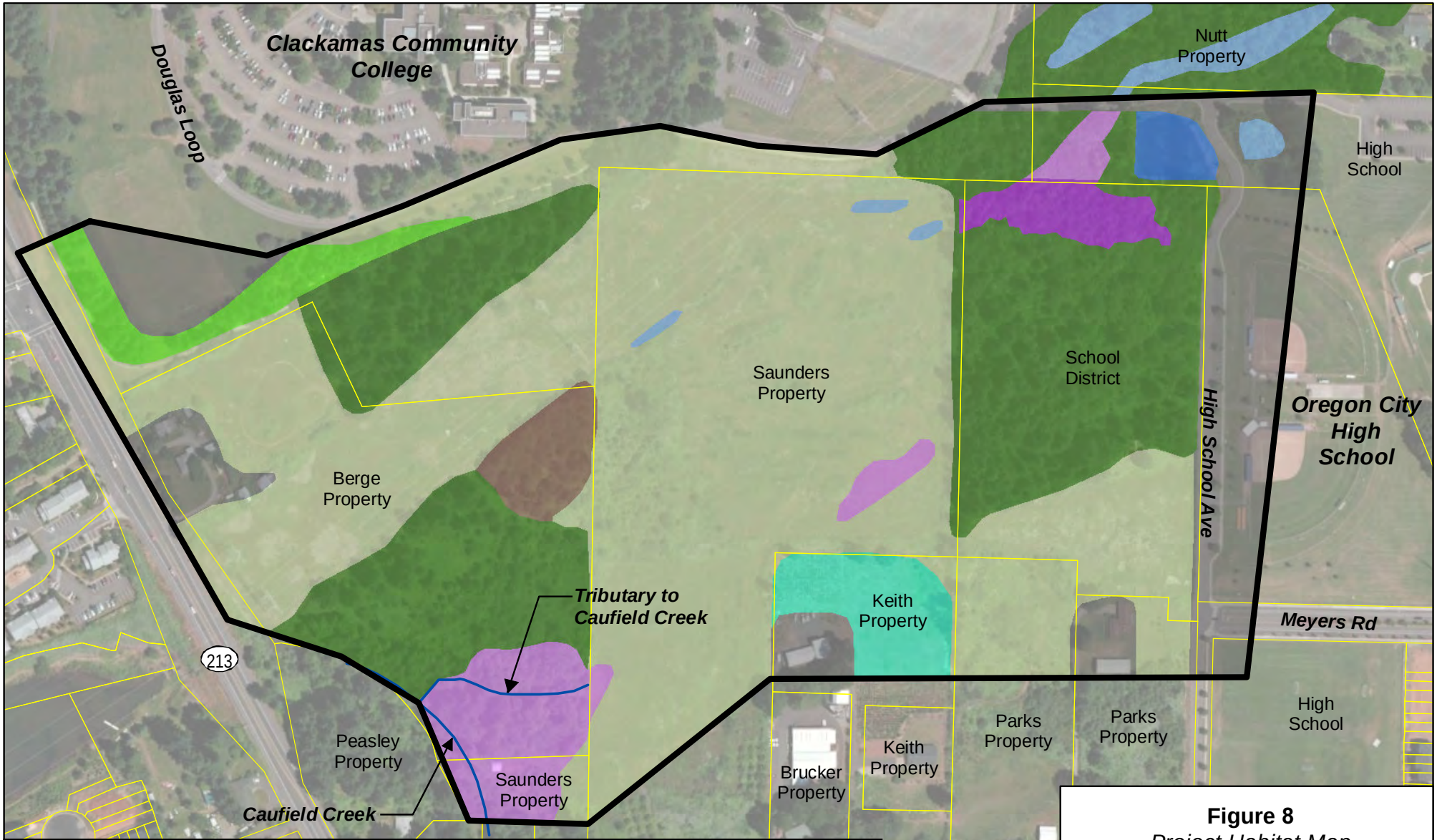


Figure 8
Project Habitat Map

Reconnaisance level mapping based on April 23, 2015 site visit

Document Path: P:\O\ORCT00000041\0600INFO\GS\Maps\Fig_07_Habitat_Mapping.mxd

Oak Woodland

A small, but still relevant patch of Oak Woodland was mapped in the study area. Oak woodland is not a regulated habitat; however, it is considered a Strategy Habitat by the Oregon Conservation Strategy (ODFW 2006), which is administered by ODFW. The patch of Oak Woodland habitat in the project area contains mature Oregon oak. The understory contains a mix of native and non-native shrubs and herb cover. Although not required, it is recommended that this habitat be avoided or impacts minimized to the extent practicable.

Douglas Fir Forest

Douglas fir forest habitat is mapped in three areas in the project study area. The habitat is characterized by Douglas fir trees estimated to be between 40 and 80 years old, with a mix of high quality native understory to highly degraded understory dominated by non-native shrubs, primarily Himalayan blackberry. This habitat is not regulated, nor is it considered a Strategy Habitat by the Oregon Conservation Strategy as its age is far too young to be considered late-successional Douglas fir forest (i.e. hundreds of years old). An exception to the non-regulated status is where the forest occurs within the NROD buffer, which is typically 50 feet from the edge of wetlands and streams, unless steep slopes are present in which case the buffer can be up to 200 feet. Although not required beyond the NROD buffer, it is recommended that this habitat be avoided or impacts minimized to the extent practicable.

Non-native pasture and shrubland

Much of the project area consists of non-native pasture and shrubland habitat, including the majority of the proposed Meyers Road alignments. This habitat type is not regulated, except where it may occur within the NROD buffer, nor is it an Oregon Conservation Strategy priority habitat. This habitat consists of disturbed areas that are dominated by non-native pasture grasses, such as tall fescue and orchard grass, and invasive shrub species including Himalayan blackberry and Scotch broom. Although wildlife will use this habitat, it is of generally lower habitat quality than the forested wetland and upland habitats previously described. That said, it does provide a corridor for wildlife movement between higher quality habitat areas. This habitat type is not recommended for avoidance or minimization of impacts by the Meyers Road project; however, if a wildlife corridor can be maintained between the higher quality forested upland habitats, that would be welcomed. The BPA corridor could potentially serve this purpose, as it is unlikely to be fully developed in the future.

Tree Farm

This area consists of a small patch of Christmas trees in the south portion of the project. It is not a protected habitat type. And it is not recommended for avoidance or minimization of impacts by the Meyers Road project.

Fir Trees with Maintained Understory

This habitat type consists of rows of fir trees where the understory is either lawn, mulch, or similarly maintained. The habitat occurs along an access road for the Community College Campus. It is not a protected habitat type, and, from an ecological perspective, it is not recommended for avoidance or minimization of impacts by the Meyers Road project.

Developed/Semi-developed

Developed/semi-developed areas refer to areas that contain roads, dwellings, ball fields, and similarly maintained areas. This is not a protected habitat type, and from an ecological perspective, it is not recommended for avoidance or minimization of impacts by the Meyers Road project.

THREATENED AND ENDANGERED SPECIES

The Oregon Natural Heritage Information Center (ONHIC) database documents the federally listed and state listed threatened and endangered (T&E) species. The State of Oregon and the federal government maintain separate lists of T&E species. These are species whose status is such that they are at some degree of risk of becoming extinct.

Under state law (Oregon Revised Statutes 496.171 to 496.192) the Fish and Wildlife Commission, through the ODFW, maintains the list of native wildlife species in Oregon that have been determined to be either threatened or endangered according to criteria set forth by rule (Oregon Administrative Rule [OAR] 635-100-0105). Plant listings are handled through the Oregon Department of Agriculture, while most invertebrate listings are conducted through the Oregon Natural Heritage Program.

Under federal law, the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) share responsibility for implementing the federal Endangered Species Act (ESA) of 1973 (Public Law 93-205, 16 United States Code (USC) § 1531), as amended. In general, USFWS has oversight for land and freshwater species and NOAA for marine and anadromous fish species. In addition to information about listed species listed, the USFWS Oregon Field Office maintains a list of Species of Concern.

Table 7. ONHIC-Identified Federal and State Listed Threatened or Endangered Species

Common Name	Scientific Name	Location	Status	
			Federal[1]	State[2]
Vertebrate Animal				
Steelhead (Lower Columbia River ESU, winter run)	*Oncorhynchus mykiss pop. 27*	Abernethy watershed	LT	SC
Painted Turtle	*Chrysemys picta*	Abernethy watershed/CCC	-	SC
Western Turtle	*Actinemys marmorata*	Abernethy watershed/CCC	SOC	SC

Acronyms: SOC = Species of Concern; LT = Listed Threatened; SV = Sensitive-Vulnerable; SC = Sensitive-Critical; C Candidate for Listing as Threatened or Endangered)
Source: Oregon Natural Biodiversity (ORBIC) database, 2015

Once it is listed as T&E, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise "taking" a species. In some instances, the listing of a species can be avoided by the development of Candidate Conservation Agreements that may remove threats facing the candidate species.

A species is listed as one of two categories, endangered or threatened, depending on its status and the degree of threat it faces. An "endangered species" is one that is in danger of extinction throughout all or a significant portion of its range. A "threatened species" is one that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range. "Species of Concern" is an informal term under the federal listing that is not specifically defined in the federal ESA. The term commonly refers to species that are declining or appear to be in need of conservation.

Under Oregon's Sensitive Species Rule (OAR 635-100-040), a "sensitive" species classification was created that focuses fish and wildlife management and research activities on species that need conservation attention. "Sensitive" refers to naturally reproducing fish and wildlife species, subspecies, or populations that are facing one or more threats to their populations and/or habitats. Implementation of appropriate conservation measures to address the threats may prevent them from declining to the point of qualifying for threatened or endangered status.

Sensitive species are assigned one of two subcategories. "Critical" sensitive species are imperiled with extirpation from a specific geographical area of the state because of small population sizes, habitat loss or degradation, and/or immediate threats. Critical sensitive

species may decline to the point of qualifying for threatened or endangered status if conservation actions are not taken. "Vulnerable" sensitive species are facing one or more threats to their populations and/or habitats. Although not currently imperiled with extirpation from a specific geographical area of the state, vulnerable species could, however, become so with continued or increased threats to populations and/or habitats. For plants, there are no sensitive species candidates for listing as threatened or endangered.

APPENDIX A – STAKEHOLDER INTERVIEWS AND MEETING SUMMARIES

Baseline Conditions Report Appendix A

- Stakeholder Interviews
- Project Management Team Meeting (PMT) Agenda and Minutes for: PMT Meeting #1, PMT Meeting #2, and PMT Meeting #3
- Preapplication Conference Notes (To Be Held)
- Caufield Neighborhood Meeting Summary (Available by request from Oregon City Community Development Department)
- Oregon City TAC Meeting #1 Summary (Available by request from Oregon City Community Development Department)

DAVID EVANS
AND ASSOCIATES INC

Meyers Road Project
Property Owner Interviews Summary

The owners of three properties were separately interviewed on April 7, 2015 by KC Cooper of David Evans and Associates. Interviewees were asked to respond to a prepared list of questions that 1) provided information for a memo of baseline conditions for the area of potential alignment for the new Meyers Road Extension, and 2) elicited their opinions on the optimal alignment, for their individual properties, related to the road extension. Interviews began with a briefing on the process to get to the alternative selection. The interviewees were told that they would be contacted once the alternatives were designed so they could weigh in before the final alternative selection. The property owners were given copies of the workplan, a map of the area, and all signed consent forms to allow project team members to enter each property, with advanced notice, for surveying and other activities related to developing the baseline conditions report for the project.

During the interviews, there were some common themes:

1) The owners are in support of the road extension, have been following this project for some time and are ready to see it happen.

2) Owners are open to alternatives, even those that may impact their properties. However, reduction of remnants or unbuildable portions should be avoided.

3) None of the owners are pursing sales or development options until the extension is built.

4) All would like to be included in discussion about property access points along the new extension.

5) There are few obstructions (wells, vaults, utilities) within the project area that would affect alternatives.

6) Current zoning is a concern related to future development of the properties. Owners would like the city to review.

7) The location of the intersection of the new Loder Road extension is of interest to the owners and they would like to be included in the stakeholder outreach for that project.

The following pages summarize the results of the individual interviews.

Meyers Road Property Owner Interviewee: Ron Saunders, tax lots 3-2E-09C -00200, 3-2E-09C -00602

1) Do you have decision-making authority for what happens to your property, or are there other entities responsible as well? If so, who?

- Saunders is the owner

2) Do you have plans to sell your property either in the near or distant future?

- No plans at this time. He purchased the property many years to hold for 30-50 years.

3) How is the property currently used?

- No current uses. No revenue generated from it, it's mostly not maintained.

4) How do you currently access your property?

- Two gates, one off the CCC loop drive, the other off Glen Oaks Rd.

5) Do you have plans to redevelop your property in the near future? Long term?

- No real plans. He says he has made overtures to the college as a possible site for student housing. Turnover in college staff left this issue without conclusion. He said he discussed selling an eastern portion to the school district for as bus barn location for $3 million which was rejected. He had offered to make the southern portion of the property to the City for use as a dog park. He didn't get a positive response.
- He is waiting for Meyers Road to be extended before determining what development could occur. He would like a compatible use with the other properties in the area, perhaps student housing or a YMCA or other public facility.

6) Are there issues with the property that we should be aware of? (environmental, utility, etc.)

- None that he knows of. (Note: another property owner commented that he thought there were drainage pipes within the property but wasn't certain)
- Water drains through his property from northeast to southwest, but it isn't near as much as what used to drain through his property before the school's retention facility was built. He estimates he gets only 25% of the original flow.

7) (looking at map) What do you think is the optimal alignment(s) for your property?

- He would like the end result to provide usable parcels. He would like to know why the City hasn't considered running the road along the south side of CCC, then align between the Nut and church properties to connect to Beavercreek Road.
- For his own property, he indicated an alignment that would enter his property where it meets the Berge Property, head slightly south then directly east through the Keith and parks property to Meyers road.

8) What issues you see related to the property that the Project team should take into consideration when developing alternatives?

- He wants assurance that the project will treat the private property owners fairly. Other than that, he is willing to accept the results of the alternative selection.
- He is concerned that large trucks will use the road and won't be able to negotiate the turns at High School Road. Also concerned about poor driving habits by students. Road needs to be safe.
- There are conflicts in zoning that need to be looked at (he did not elaborate).

9) Do you have any other comments, questions or concerns about the project?

- He would like the road to be cost effective and efficient (criteria)
- He would like the School District to consider using the north portion of his property for the bus barn, to avoid tree removal.
- He would like the CCC to acknowledge the possibility of an alignment just south of their campus

Meyers Road Property Owner Interviewees: Rocky and Lavona Keith, tax lot 3-2E-09C -00300

1) **Do you have decision-making authority for what happens to your property, or are there other entities responsible as well**
   - The Keiths are the sole owners

2) **Do you have plans to sell your property either in the near or distant future?**
   - No

3) **How is the property currently used?**
   - They grow Christmas trees around the east and north perimeter of the property. The trees generate income; they don't take a tax credit for this business.
   - There is a large shed on the northwest part of the property. They use it to store paint supplies (they own a painting business) as well as the equipment for managing the tree farm. They include the shed as part of their business expenses.
   - The property was partitioned and their son owns a parcel to the NE (note: likely not affected by the road alternatives)

4) **How do you currently access your property?**
   - There is a driveway from Glen Oaks between their property and their son's property.

5) **Do you have plans to redevelop your property in the near future? Long term?**
   - No

6) **Are there issues with the property that we should be aware of? (environmental, utility, etc.)**
   - There is an underground electrical line to the shed from the south.

7) **(looking at map) What do you think is the optimal alignment(s) for your property?**
   - They would prefer that the alignment run along the edge of the property so that they would not need an easement to access the road through the Saunders property. They are not opposed to the road going through the north end of the property.

8) **What issues you see related to the property that the Project team should take into consideration when developing alternatives?**
   - None given

9) **Do you have any other comments, questions or concerns about the project?**
   - They would like to be kept informed about the alternatives for the Loder Road extension as it develops.

Meyers Road Property Owner Interviewees: Kathy Berge, Dan Berge, Terry Emmert, tax lot 3-2E-09C -00700

1) **Do you have decision-making authority for what happens to your property, or are there other entities responsible as well**
   - The property is owned jointly and equally by Kathy Berge and Terry Emmert. They have owned the property for over 20 years.

2) **Do you have plans to sell your property either in the near or distant future?**
   - Once the road is built they will consider it, unless they chose to do their own development

3) **How is the property currently used?**
   - There are two rental homes on the property. One is vacant; the other will be vacant in May of this year. They haven't decided whether they will rent them out, partially because of potential impacts to the property by the extension.

4) **How do you currently access your property?**
   - There are two driveways off of Hwy 213

5) **Do you have plans to redevelop your property in the near future? Long term?**
   - They have discussed several options including senior community (single family dwellings, commercial space (strip mall, or businesses to support housing if they build it), student housing, or a housing subdivision. The two owners do not have agreement on a development option.

6) **Are there issues with the property that we should be aware of? (environmental, utility, etc.)**
   - There is a well just north of the westernmost rental. It serves both dwellings.
   - There is a septic system that serves both homes which they think is between the two rentals but aren't certain.

7) **(looking at map) What do you think is the optimal alignment(s) for your property?**
   - Mr. Emmert had a previous alternative map with him showing how the alternative cut into two corners of their property. If this is the chosen alignment he would like the City and CCC to consider swapping the land they need from the owners for the remnants of CCC land that would be to the south of the alignment. Those parcels would be likely useless to the college, and they could have a straight boundary line against the road.

8) **What issues you see related to the property that the Project team should take into consideration when developing alternatives?**
   - Mr. Emmert assumes that ODOT will eventually force them to close the driveways off of Hwy 213. When Meyers is built they would like 2-3 curb cuts along the extension to access their property.

9) **Do you have any other comments, questions or concerns about the project?**
   - Mr. Emmert has concerned about the zoning of the area and would like the city to review and work with the property owners in making adjustments.

Meyers Road Extension Alternatives (OREGON CITY)

Kickoff Meeting Agenda

City Hall, Commission Chambers, 625 Center Street, Oregon City

Thursday, March 12th, 2015

1:00 PM – 4:00 PM

(Linking Education and the Community)

Invitees:

John Lewis, City PM	Mike Hickey, Consultant PM
Kelly Moosbrugger, City Planner	Elizabeth Mros, Lead Planner
Martin Montalvo, City Operations Manager,	Anneke Van der Mast, Asst. Planner
Aleta Froman-Goodrich, City Engineer	KC Cooper, Public Involvement
Abraham Tayar ODOT	
Bob Cochran, Dean CCC	
Wes Rogers, OCHS	
Seth Burmley, Planner ODOT	
Scott Archer, Parks	

PROJECT OVERVIEW (HICKEY & LEWIS)

- History and Key Issues –general scope
- Process and outcomes
- Keep elected (decision makers informed)
- Definition of Success

CURRENT DESIGN, STATUS AND SCHEDULE (HICKEY & LEWIS)

- Review roles and responsibilities
- Base Map/Aerial Review – Project Limits

- Schedule – program expectations

Received NTP	February 12, 2015
PMT meeting #1	March 12 -Thursday
PMT meeting #2	April 2-Thursday
Pre-application conference	TBD
PMT meeting #3	April 30-Thursday
City TAC briefing	May 12-Tuesday
PMT meeting #4	June 25-Thursday
Presentation to CCC and OCSD	July 21-Tuesday
Attend City Planning Commission meeting	August 11-Tuesday

PLAN FOR ON-GOING COMMUNICATIONS (HICKEY)

- Monthly (or as required) design coordination meetings
- Frequent e-mail updates
- Consultant project manager to be 'copied' on all DEA internal email & written communications
- Project Leader and Client (John and Martin) to be copied on all external email and written communications
- Regular meeting time and place
- Public information distribution
  - ✓ Stakeholder interviews
  - ✓ Neighborhood meeting
- Stakeholder outreach

PROJECT EXISTING CONDITIONS

- BPA line
- Wetlands and water quality facilities
- CCC master plan
- OCHS plans
- Private land development plans
- Transportation System Plan (TSP)
- Glen Oak Park master plan
- Other

PROJECT SCREENING CRITERIA (ISSUES, OPPORTUNITIES AND CONSTRAINTS)

(examples)

- Cost of project should be in line with the benefit provided
- Minimize environmental impact
- Options should meet the needs of most stakeholders

ACTION ITEMS / OTHER

Meyers Road Extension Alternatives (OREGON CITY)

PMT #1 (Kickoff) Meeting

City Hall, Commission Chambers, 625 Center Street, Oregon City

Thursday, March 12th, 2015

1:00 PM – 3:00 PM

(Linking Education and the Community)

Invitees:

John Lewis, City PM, Director of Public Works	Mike Hickey, Consultant PM DEA
Kelly Moosbrugger, Planner	Elizabeth Mros, Senior Planner DEA
Martin Montalvo, Public Works Operations Manager,	Anneke Van der Mast, Asst. Planner DEA
Abraham Tayar ODOT Development Review Engineering Lead	KC Cooper, Communication Strategist DEA
Bob Cochran, Dean of Campus Services CCC	Seth Burmley, Planner ODOT
Wes Rogers, Director of Operations OCSD	Scott Archer, Community Services Director (Parks contact)

PROJECT OVERVIEW (HICKEY & LEWIS)

- *History and Key Issues* –scope of work collectively developed by City, CCC and OCHS.
- *Process and outcomes* – a series of meetings is planned to address concerns and develop opportunities
- *Keep elected (decision makers informed)*
- *Definition of Success*

Collaboration, reach consensus, address Meyers and Loder Rd., develop adopted plan and obtain dedicated R/W, improve traffic, obtain financing , meet schedule, bus circulation, reduce congestion, develop 213 and Meyers intersection, park development, one planning commission meeting, break ground in July, safety.

CURRENT DESIGN, STATUS AND SCHEDULE (HICKEY & LEWIS)

- *Review roles and responsibilities* – John is very busy Martin will function as the City PM. Each representative from the PMT will keep their decision makers informed.

- *Base Map/Aerial Review – Project Limits*

Bergs not yet contacted (co-owned with Terry Emmert, Keith interested in access)
Loder quick response grant awarded for streetscape design
Pacific Habitat has done some wetland delineation.
Martin will provide owner contact info from GIS.
Bob has strategic assessment update for campus.
Scott provided map of parks master plan for viewing.
An apartment complex for students is planned east of Beavercreek Rd.
A roundabout takes more room but requires less maintenance.
TSP classification for Meyers is minor arterial.

- *Schedule – program expectations*

Received NTP	*February 12, 2015*
PMT meeting #1	*March 12 -Thursday*
PMT meeting #2	*April 9-Thursday*
Pre-application conference	*probably June (Kelly & Martin)*
Caufield neighborhood mtg.	*April 28 - Tuesday*
PMT meeting #3	*April 30-Thursday*
City TAC briefing	*May 12-Tuesday*
PMT meeting #4	*June 25-Thursday*
Presentation to CCC and OCSD	*July 21-Tuesday*
Attend City Planning Commission meeting	*August 11-Tuesday*

PLAN FOR ON-GOING COMMUNICATIONS (HICKEY)

- Monthly (or as required) design coordination meetings
- Frequent e-mail updates
- Consultant project manager to be 'copied' on all DEA internal email & written communications
- Project Leader and Client (John and Martin) to be copied on all external email and written communications
- Regular meeting time and place will be at city hall Thursday afternoons
- Public information distribution
  - ✓ Stakeholder interviews
  - ✓ Neighborhood meeting
- Stakeholder outreach

  1. Tight Timeline – targeted -focus is on the most affected stakeholders

  2. Set up and update a project page on the City's website

  3. We'll also help develop talking points for the PMT to keep boards/electeds informed

  4. During alternatives development we'll meet with the property owners and major stakeholders for input—future development, property owner issues, etc. We expect to follow up 2-3 times as we move thru process

5. We will also meeting with the Caufield NH association and the CIC to gather their feedback, both for the alternatives developed and the preferred alternative. Promote these meetings to attract others who might be interested.

6. Presentation to CCC and OC School board – important to keep them in the loop as we progress.

PROJECT EXISTING CONDITIONS

- BPA line
- Wetlands and water quality facilities –overview from GIS only
- CCC master plan- several years old, a strategic plan is also available
- OCHS plans, School will provide additional plans
- Private land development plans are unknown or non-existent
- Transportation System Plan (TSP) plan is just a line on a map, does not show accurate location of planned improvements
- Glen Oak Park master plan
- Other

PROJECT SCREENING CRITERIA (ISSUES, OPPORTUNITIES AND CONSTRAINTS)

(draft)

a. Cost of project should be in line with the benefit provided
b. Minimize environmental impact
c. Options should meet the needs of most stakeholders
d. Consistent with current plans (TSP, School Dist, Parks)
e. Meet street functional classification requirements (minor arterial)
f. Manage access to properties
g. Safety-multimodal
h. Minimize land remnants
i. Connection to Loder Road
j. Maximize developable land

ACTION ITEMS / OTHER

- Martin will provide owner contacts
- DEA will provide FTP site to house information
- DEA will request CCC strategic plan, OCHS delineation and plans, Parks master plan
- KC will initiate property owner contact,
- City will provide permission of entry for wetland reconnaissance
- DEA to update schedule.
- DEA to update contact list and email to everyone.
- Kelly to upload background data onto FTP site- School District Plan, Maps, CCC Master Plan, Parks Plan, and anything else relevant.
- Bob to send any updates to the CCC plan.

Meyers Road Extension Alternatives (OREGON CITY)

PMT #2 Meeting Agenda

City Hall, Commission Chambers, 625 Center Street, Oregon City

Thursday, April 9th, 2015

1:00 PM – 3:00 PM

(Linking Education and the Community)

Invitees:

John Lewis, City PM	Mike Hickey, Consultant PM
Kelly Moosbrugger, City Planner	Elizabeth Mros, Lead Planner
Martin Montalvo, City Operations Manager,	Anneke Van der Mast, Asst. Planner
Scott Archer, Parks	KC Cooper, Public Involvement
Abraham Tayar ODOT	
Bob Cochran, Dean CCC	
Wes Rogers, OCHS	
Seth Burmley, Planner ODOT	

MEETING PURPOSE (HICKEY)

- Review project findings from stakeholder interviews and existing conditions analysis
- Review and confirm project screening criteria
- Review and refine project alternatives based on 1 and 2

PROJECT PROGRESS (HICKEY, COOPER)

- FTP site
- Stakeholder interviews
- Caufield Neighborhood Association meeting

CURRENT DESIGN, STATUS AND SCHEDULE (HICKEY & LEWIS)

- Base Map/Aerial Review – Project Limits

- Schedule – program expectations

Received NTP	February 12, 2015
PMT meeting #1	March 12 -Thursday
PMT meeting #2	April 9-Thursday
Pre-application conference	June?
PMT meeting #3	April 30-Thursday
City TAC briefing	May 12-Tuesday
PMT meeting #4	June 25-Thursday
Presentation to CCC and OCSD	July 21-Tuesday
Attend City Planning Commission meeting	August 11-Tuesday

PROJECT EXISTING CONDITIONS – REVIEW FINDINGS (VAN DER MAST)

- BPA line
- Wetlands and water quality facilities
- CCC master plan
- OCHS plans
- Private land development plans
- Transportation System Plan (TSP)
- Glen Oak Park master plan
- Other

PROJECT SCREENING CRITERIA (ISSUES, OPPORTUNITIES AND CONSTRAINTS) (HICKEY/COOPER)

- Design Criteria- Typical Section, Design Speed
- Consistent with current regional plans (TSP, School Dist, Parks, CCC masterplan)
- Meet street functional classification requirements (minor arterial or major collector)
- Optimize access to properties
- Design maximizes safety for all modes
- Options should meet the needs of most stakeholders
- Minimize environmental impacts
- Cost of project should be in line with the benefit provided
- Maximize multimodal environment
- Maximize developable land and minimize land remnants
- Provide options for connecting to (future) Loder Road extension
- Provide access to (future) park

WORKING SESSION (ALL)

Review and refine existing alternatives
(for drawing preview see ftp://ftp2.deainc.com/2015-04-07 Plan - 36x38L.pdf)

ACTION ITEMS / NEXT STEPS

Meyers Road Extension Alternatives (OREGON CITY)

PMT #2 Meeting Notes

City Hall, Commission Chambers, 625 Center Street, Oregon City
Thursday, April 9th, 2015
1:00 PM – 3:00 PM

Attendees:

John Lewis, City PM	Mike Hickey, Consultant PM
Kelly Moosbrugger, City Planner	Elizabeth Mros, Lead Planner
Martin Montalvo, City Operations Manager,	KC Cooper, Public Involvement
Bob Cochran, Dean CCC	Scott Archer, Parks
Wes Rogers, OCHS	Abraham Tayar ODOT

MEETING PURPOSE (HICKEY)

- Review project findings from stakeholder interviews and existing conditions analysis
- Review and confirm project screening criteria
- Review and refine project alternatives based on 1 and 2

PROJECT PROGRESS (HICKEY, COOPER)

The graphic used to discuss the alternatives is available at:

ftp:\\ftp2.deainc.com\2015-04-07 Plan - 36x38L.pdf

- **Stakeholder interviews:** KC provided a summary of her interviews with the property owners of three properties potential affected by the road alignment:
    - The owners were open to alternatives and none are pursuing sales or development plans until the road is constructed.
    - They mentioned that the road should be safe, cost efficient and fair to all owners. There are no major physical (main made) obstacles on the properties that would affect design, other than a storage shed on the Keith property.
    - **Saunders:** The project should avoid creating remnants and maximize developable parcels.
    - **Keith:** Would prefer that the alignment run along the edge of his property, and doesn't want it to be farther north, so that he would need an easement from Saunders to access the road. He is ok if the road needs to go through the northern part of the property.
    - **Berge/Emmert:** Wants the City and CCC consider a "land swap" –trading what the City needs for the road for the CCC remnants adjacent to their property that would be caused by the road alignment. This would give them a continuous property line along the road.

- **Caufield Neighborhood Association meeting:** John, Kelly and Martin are attending the April 28 Caufield meeting to discuss the project and get feedback on what they would like to see in road design and alignments.

CURRENT DESIGN, STATUS AND SCHEDULE (HICKEY & LEWIS)

- **Base Map/Aerial Review :**
    - The group reviewed a base map that included information and potential alignments referenced in several documents including the TPS, RTP, CCC Master Plans and results of the PMT #1 discussions.
    - The multi-story parking indicated on the CCC campus should be removed.
    - There is a planned transit stop; TriMet should be included in the discussions in the future. The City expects transit service to increase in the next few years. Bus layover locations need to be considered at this site.
    -
- **Road Design issues**
    - The group agreed to reducing speed on the new section of Meyers to 30 mph. The City will look at improving signage for the school zone.
    - The currently planned road ROW is 94' feet. Alternative cross-sections should include the possibility of a multi-use path on the north side, instead of separate bike lanes and sidewalks. Multiuse paths normally range from 12-16 feet depending on the environment. A minimum of 100' right of way will likely be needed to accommodate the path.
    - The road provides a missing link to the trail system in the area, so design should consider the placement of pedestrian and bike facilities to optimize connections. It's expected that bike traffic will increase when the road comes in from those using the trail system and accessing the high school, park and CCC.
    - The design needs to consider where crossing areas should be located from the north side of Meyers to the park on the south, and from the south side off Meyers to the CCC campus.
    - Consider using design (eg curves, bulb outs, medians) to naturally reduce speed off vehicle traffic near the school zone.
    - The bus barn includes a single entrance and single exit onto Meyers Road.
    - The assumption is that the road needs to follow the property boundaries off the park and school bus barn property. Parks may not be able to do adjustment to the property line to allow for straightening the curve. City charter stipulates that they cannot sell, donate, swap City land with another property owner without a public vote. Scott will check into this. Designers need to look how to optimize this section and not affect the current boundaries by placement of drainage, access points and other methods.
    - The High school has designed the bus barn site but is willing to look at the potential of dedicating some of the land to improve the road safety. However, their design is going to bid April 22, so discussions need to happen at their next design meeting.
    - The CCC wants the connection from the Meyers extension to link to Kildeer Rd on their campus.

- **Selection Criteria review**
    - Change "Cost of project should be in line with the benefit provided" to "Be cost effective
    - Change "Options should meet the needs of most stakeholders" to "Consider the objectives of all stakeholders."
    - Change "Maximize multimodal environment" to Maximize multimodal opportunities"

- **Outreach:**
    - An article about the project will be in the next Trail News coming out in Early May.
    - Martin will attend both the April 28 and July 28 Caufield neighborhood meetings to get feedback on alternatives.
    - The public will be invited to the July 21 TAC meeting (6 pm) for a discussion on the preferred alternatives, before the final recommended alternative is selected

- **Next PMT meeting – April 30**
    - Draft alternatives Summary Maps and Performance matrix
    - Additional feedback from Caufield Neighborhood
    - Action item responses. (see below)

- **Action Items**
    - Scott to upload the park plan to the FTP site.
    - All PMT members are to review the list of Existing Conditions/Design Considerations to ensure everything is included. CCC to provide any master plan updates.
    - Mike to remove the planned CCC multi story parking structure from the map, and add contours. Typical to be revised to include a shared path on the north side and 100' right of way and median.
    - Martin to invite Vanessa Vissar (TriMet) to the April 30 PMT meeting.
    - Scott will double check the Charter interpretation that may prevent adjusting the property lines to straighten out the curve at High School Road.
    - Mike will talk to designers about the boundary issue between Parks and School District and look for ways to design to the current boundaries.
    - Mike and John are to attend the next (4/14) Parks/school district design meeting to discuss the boundary and design issue at the east end of the road extension
    - Martin to contact Caufield neighborhood to get on the July 28 agenda, and to put the alternatives discussion on the July 21 TAC agenda.
    - Mike to add July 21st TAC meeting to the calendar.

Meyers Road Extension Alternatives (OREGON CITY)

PMT #3 Meeting Agenda

City Hall, Commission Chambers, 625 Center Street, Oregon City

Thursday, April 30th, 2015

2:00 PM – 4:30PM

(Linking Education and the Community)

Invitees:

John Lewis, City PM	Jake Johnston, Engineering
Kelly Moosbrugger, City Planner	Elizabeth Mros, Lead Planner
Martin Montalvo, City Operations Manager,	Anneke Van der Mast, Asst. Planner
Scott Archer, Parks	KC Cooper, Public Involvement
Abraham Tayar ODOT	Vanessa Vissar TriMet
Bob Cochran, Dean CCC	John Replinger, Traffic
Wes Rogers, OCHS	
Seth Burmley, Planner ODOT	

MEETING PURPOSE – SELECT PREFERRED ALTERNATIVE

Review alternatives in consideration of project evaluation criteria and select Preferred Alternative.

AGENDA ITEMS

WEBSITE AND OUTREACH UPDATE (MARTIN)

- Review status of website and process for updating website.

BASELINE CONDITIONS UPDATE (JOHN & ANNEKE)

- John Replinger will provide update on traffic findings. Anneke will provide update on wetland reconnaissance.

CAULFIELD NEIGHBORHOOD MEETING SUMMARY (KELLY)

- Summary of Caulfield Neighborhood Association being held on April 28, 2015.

PARKS/SCHOOL DISTRICT SUMMARY (JOHN)

- Update on design at east end of project along Park and School District property.

ROUNDABOUT DESIGN (JAKE)

- Discuss implications of including a roundabout in alternatives

REVIEW EVALUATION CRITERIA (ANNEKE)

- Evaluation criteria were further refined to provide for opportunities of measureable differences. These will be reviewed with the group.

WORKING SESSION – SELECTING THE PREFERRED ALTERNATIVE (ALL)

- Review updated alternatives and alternatives map
- Assess alternatives in consideration of project evaluation criteria
- Select Preferred Alternative or determine what additional information or process is needed.

MATERIALS

- Workplan
- Evaluation Criteria Worksheet
- Typical Section
- Alternatives Maps

ACTION ITEMS / NEXT STEPS

- Further refine Preferred Alternative

Meyers Road Extension Alternatives (OREGON CITY)

PMT #3 Meeting Notes

City Hall, Commission Chambers, 625 Center Street, Oregon City

Thursday, April 30th, 2015

1:00 PM – 4:30PM

(Linking Education and the Community)

Attendees: Invitees:

John Lewis, City PM	Jake Johnston, Engineering
Kelly Moosbrugger, City Planner	Elizabeth Mros, Lead Planner
Martin Montalvo, City Operations Manager,	Anneke Van der Mast, Asst. Planner
Scott Archer, Parks	KC Cooper, Public Involvement
Abraham Tayar ODOT	Vanessa Vissar TriMet
Bob Cochran, Dean CCC	John Replinger, Traffic
Wes Rogers, School District	Dana Webb, Engineering (OC)
Seth Burmley, Planner ODOT	

MEETING PURPOSE – SELECT PREFERRED ALTERNATIVE

Review alternatives in consideration of project evaluation criteria and select Preferred Alternative.

AGENDA ITEMS

WEBSITE AND OUTREACH UPDATE (MARTIN)

- Website is ready to go live. KC will confer with Martin after the meeting on what items to load up. It should include the selection criteria and the roadway x-section. Other maps to be loaded when they are edited

BASELINE CONDITIONS UPDATE (JOHN & ANNEKE)

- John Replinger provided information on traffic/existing conditions

- John stated that it is ideal to keep the roads as narrow as we can to meet the needs identified. A dedicated westbound right-turn lane at the intersection of Meyers Rd and Highway 213 may be merited. Additional analysis will need to be performed to determine the configuration of the intersection. This would mean adding another lane onto Meyers at the intersection. John Replinger will review volumes to assess whether it's warranted. A fourth lane at the intersection of new Meyers Extension and Hwy 213 may have impacts.
- The most likely scenario is a stop sign at the extension of Kildeer Rd. at the intersection with Meyers.
- All intersections (5) currently meet city and ODOT performance standards.
- Intersection of Glen Oak/Hwy 213 does not appear to operate as well as predicted by the traffic operations analysis software. ODOT and the City are aware of this. Performance issues at this intersection cannot be addressed in this project process. The construction of Meyers Road, however, can be expected to have a positive impact on operations at Glen Oak/213. He will take into consideration the performance today when he develops future traffic volumes for Meyers Road.
- The City has determined that Loder Road will connect to High School Road. A typical section needs to be determined at a later date. The right of way would include part of the parking and ball field to the east. It would be a 60' collector with an off-set center alignment. Will need to look at how this will intersect with Meyers Road.

- Anneke summarized the Environmental baseline conditions
  - No fatal flaws. A field survey for wetlands found only small intermittent areas of potential wetlands along the possible roadway routes.
  - Look at moving alignment south into Keith property to avoid the adjacent wetland
  - Keep the corners of the park in the public right of way, no remnants
  - There is a grove of Oak Trees that is good habitat but not regulated located on the Berge property.
  - Some areas that were on the wetlands map appear to be dry. Could be due to the new drainage area that the school district put in place at the north end of High School Avenue.

CAULFIELD NEIGHBORHOOD MEETING SUMMARY (JOHN)

- The neighborhood is supportive of and eager for the project to move forward. There was discussion about the School Districts new plans. Attendance included one of the private property owners. The attendees were supportive of campus industrial development and somewhat concerned about bus traffic.

PARKS/SCHOOL DISTRICT SUMMARY (JOHN)

- Wes and John Replinger reported on the design of the school bus maintenance facility. The group looked at issues related to the east end of the project (near HS road). There was concern the typical roadway section in this area would encourage people to park on the north side and jaywalk to reach the park. In addition, parking adjacent to the bus facility could reduce visibility and create conflicts between buses and cars.
- **After much discussion the group concluded that the 7' parking lane on the north side of the new extension would be eliminated and that a 3' bike lane buffer would be added to the south side of the road.** This would shrink the right-of-way width down to 93'. Access to the park would still be maintained, the sight lines for buses entering/leaving the bus lot would be improved. A half-street section is being built as park off the school district's development and will define the east end of Meyers Road.

ROUNDABOUT DESIGN (JAKE/JOHN R)

- Discuss implications of including a roundabout in alternatives:
    - Roundabouts need to be designed to the largest vehicles expected. Meyers Road is designated for freight. The larger the roundabout, the straighter the lanes, therefore large roundabouts don't encourage drivers to slow down.
    - A 250' diameter roundabout takes about one acre of land. More property would need to be taken from Saunders - assuming the connection to CCC is Killdeer Rd.
    - Roundabouts work best when the traffic from all legs is about equal. That would probably not be the case for access to CCC.
    - There are often concerns about pedestrian safety at roundabouts because motorists are good about noticing pedestrians and cyclist when they are entering the roundabout, but not when they are exiting.
    - Knowing what the land use will be helps to determine volumes to determine if an intersection should be a roundabout, stop control (1, 2 or 4-way) or a signalized intersection.
    - During the A.M. peak, it is expected that approximately 115 cars heading north on Hwy 213 may turn on Meyers to connect to the new road to CCC.
    - John noted that a for the intersection of Meyers Road and the connector to CCC, a standard intersection with turn lanes and with stop-control for the connector to CCC would be a reasonable starting point for the evaluation. All-way stop-control, a roundabout or a signalized intersection could be evaluated depending on the performance of the first option.

WORKING SESSION – REVIEWING THE ALTERNATIVE (ALL)

- Reviewed updated alternatives and alternatives map: The north alignment (alt. 1) green, a middle alternative (alt. 2) red, and a south alignment (alt.3) black were presented. The three alternatives were studied by the group and the selection criteria were evaluated against each alternative.

- The group looked at how each alignment would be connected to an entrance to CCC. Some require more private property acquisition.
- BPA may require perpendicular entry across their corridor. This needs to be checked.
- South (black) alternative may stimulate a remnant swap between CCC and the Berge to have both properties front the new road. The CCC is willing to consider this. The property owner mentioned this as an option as well.
- The location of the shared use path on the north needs to be determined (related to CCC access. Engineering needs to look at the intersection at Hwy 213 to see how the path is placed there.
- Select Preferred Alternative or determine what additional information or process is needed.
- Middle alignment (red) would leave a remnant for Saunders, but it is under the BPA lines so land use options are limited—maybe parking or stormwater treatment.
- Consider using remnants for wetland mitigation. It won't be useful for habitat impacts though.
- Keeping the impact to the Oak forest habitat to one side is better than cutting through the middle.
- While all the alternatives would work, each have drawbacks related to the criteria. The PMT was polled for their preferences
    - Martin: Prefers middle (red) alignment
    - John: Prefers south (black) alignment
    - Bob: Red alignment, or Black alignment with land swap
    - Wes: Red alignment adjusted slightly south
    - Kelly: Red and black alignments – if we realign the middle alignment we'll need to check the curve off of Hwy. 213
    - No one preferred the northern alignment
- **The Group decided that it was worth looking at a 4th alternative—a hybrid of the middle and south alignments.** Jake will do a hybrid, and check curves, etc. to see how this would work and present to the group. BPA will need to be contacted as well to see if it is acceptable.
- Martin will consider adding an extra PMT meeting, or, sharing the information via email and getting further comment.
- KC and Martin will discuss meeting with the private property owners to walk through the alignments and discuss the consensus of the PMT.

MATERIALS

- Workplan
- Evaluation Criteria Worksheet
- Acreage worksheets
- Typical Section
- Alternatives Maps

ACTION ITEMS / NEXT STEPS

- KC/Martin to discuss webpage uploads
- Martin to identify date for open house for alignment alternatives

- Jake to check with BPA (start internally with Chris Webber) on entrance requirements into their corridor (skew, perpendicular…)
- Martin is to schedule a meeting with TriMet to determine their needs and requirements with the alternatives. Martin will invite TriMet to future PMT meetings.
- Jake to provide suggestions on location of multi-use path on the north side, from Hwy 213 west.
- Martin to determine if an additional PMT is useful in finalizing a preferred alternative and conduct a doodle poll. He will notify the group of next steps to a preferred alternative.
- Martin and KC will discuss property owner meeting process and timeline.
- John R. will work on developing future traffic volumes and work with Kelly on assumptions for industrial land use along Meyers Road.

APPENDIX B- TRAFFIC OPERATIONS TECHNICAL

APPENDIX

TRAFFIC ANALYSIS TECHNICAL REPORT

SYNCHRO WORKSHEETS

AM PEAK HOUR

Loder Road & Beavercreek Road

Glen Oak Road/Caufield Road & Highway 213

Beavercreek Road & Glen Oak Road

Meyers Road & Highway 213

Beavercreek Road & Meyers Road

Molalla Ave/CCC Entrance & Highway 213

PM PEAK HOUR

Loder Road & Beavercreek Road

Glen Oak Road/Caufield Road & Highway 213

Beavercreek Road & Glen Oak Road

Meyers Road & Highway 213

Beavercreek Road & Meyers Road

Molalla Ave/CCC Entrance & Highway 213

HCM Unsignalized Intersection Capacity Analysis
5: Loder Road & Beavercreek

5/14/2015

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	7	35	10	687	920	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	38	11	747	1000	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1771	1003	1005			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1771	1003	1005			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	87	98			
cM capacity (veh/h)	90	294	689			

Direction, Lane #	WB 1	SE 1	NW 1
Volume Total	46	758	1005
Volume Left	8	11	0
Volume Right	38	0	5
cSH	213	689	1700
Volume to Capacity	0.21	0.02	0.59
Queue Length 95th (ft)	20	1	0
Control Delay (s)	26.4	0.4	0.0
Lane LOS	D	A	
Approach Delay (s)	26.4	0.4	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	12	6	15	2	296	1	848	15	161	378	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1676			1819	1599	1357	1806		1805	1831	
Flt Permitted		0.79			0.82	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1373			1552	1599	1357	1806		1805	1831	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	35	13	6	16	2	312	1	893	16	169	398	17
RTOR Reduction (vph)	0	4	0	0	0	276	0	0	0	0	1	0
Lane Group Flow (vph)	0	50	0	0	18	36	1	909	0	169	414	0
Heavy Vehicles (%)	4%	0%	50%	0%	0%	1%	33%	5%	0%	0%	3%	6%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		10.2			10.2	10.2	0.8	80.9		19.4	99.5	
Effective Green, g (s)		10.7			10.7	10.7	0.8	82.9		19.4	101.5	
Actuated g/C Ratio		0.09			0.09	0.09	0.01	0.66		0.16	0.81	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		118			133	137	9	1198		280	1487	
v/s Ratio Prot							0.00	c0.50		c0.09	0.23	
v/s Ratio Perm		c0.04			0.01	0.02						
v/c Ratio		0.43			0.14	0.26	0.11	0.76		0.60	0.28	
Uniform Delay, d1		54.2			52.9	53.5	61.7	14.3		49.2	2.9	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.8			0.3	0.7	3.2	4.5		2.9	0.5	
Delay (s)		56.0			53.2	54.2	64.9	18.8		52.1	3.3	
Level of Service		E			D	D	E	B		D	A	
Approach Delay (s)		56.0			54.1			18.8			17.4	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	153	30	51	671	82	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	161	32	54	706	86	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			193		991	177
vC1, stage 1 conf vol					177	
vC2, stage 2 conf vol					814	
vCu, unblocked vol			193		991	177
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			96		78	95
cM capacity (veh/h)			1393		401	861

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	NE 2
Volume Total	193	54	706	86	43
Volume Left	0	54	0	86	0
Volume Right	32	0	0	0	43
cSH	1700	1393	1700	401	861
Volume to Capacity	0.11	0.04	0.42	0.22	0.05
Queue Length 95th (ft)	0	3	0	20	4
Control Delay (s)	0.0	7.7	0.0	16.4	9.4
Lane LOS		A		C	A
Approach Delay (s)	0.0	0.5		14.1	
Approach LOS				B	

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	231	198	147	1035	373	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1570	1787	1845	3505	1555
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1805	1570	1787	1845	3505	1555
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	233	200	148	1045	377	69
RTOR Reduction (vph)	0	165	0	0	0	32
Lane Group Flow (vph)	233	35	148	1045	377	37
Confl. Peds. (#/hr)	6	4	3			3
Heavy Vehicles (%)	0%	1%	1%	3%	3%	1%
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	14.1	14.1	11.0	57.9	42.9	42.9
Effective Green, g (s)	14.1	14.1	11.0	57.9	42.9	42.9
Actuated g/C Ratio	0.18	0.18	0.14	0.72	0.54	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	318	277	246	1335	1880	834
v/s Ratio Prot	c0.13		0.08	c0.57	0.11	
v/s Ratio Perm		0.02				0.02
v/c Ratio	0.73	0.13	0.60	0.78	0.20	0.04
Uniform Delay, d1	31.2	27.8	32.4	7.0	9.6	8.8
Progression Factor	1.00	1.00	1.00	1.00	0.31	0.00
Incremental Delay, d2	8.4	0.2	4.1	4.6	0.2	0.1
Delay (s)	39.6	28.0	36.5	11.7	3.2	0.1
Level of Service	D	C	D	B	A	A
Approach Delay (s)	34.2			14.8	2.7	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	158	173	117	636	289	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1731		1770	1863	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1731		1770	1863	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	188	127	691	314	27
RTOR Reduction (vph)	49	0	0	0	0	19
Lane Group Flow (vph)	311	0	127	691	314	8
Turn Type			Prot			Perm
Protected Phases	6		5	2	4	
Permitted Phases						4
Actuated Green, G (s)	31.0		12.0	47.0	25.0	25.0
Effective Green, g (s)	31.0		12.0	47.0	25.0	25.0
Actuated g/C Ratio	0.39		0.15	0.59	0.31	0.31
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	671		266	1095	553	495
v/s Ratio Prot	0.18		0.07	c0.37	c0.18	
v/s Ratio Perm						0.01
v/c Ratio	0.46		0.48	0.63	0.57	0.02
Uniform Delay, d1	18.3		31.1	10.8	23.0	19.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3		6.0	2.8	4.2	0.1
Delay (s)	20.6		37.2	13.6	27.2	19.1
Level of Service	C		D	B	C	B
Approach Delay (s)	20.6			17.2	26.5	
Approach LOS	C			B	C	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	148	115	18	48	31	240	960	115	182	331	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3386	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3386	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	161	125	20	52	34	261	1043	125	198	360	146
RTOR Reduction (vph)	0	0	95	0	0	27	0	0	72	0	55	0
Lane Group Flow (vph)	95	161	30	20	52	7	261	1043	53	198	451	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.0	19.0	19.0	4.0	16.0	16.0	20.0	29.0	29.0	12.0	21.0	
Effective Green, g (s)	7.0	19.0	19.0	4.0	16.0	16.0	20.0	29.0	29.0	12.0	21.0	
Actuated g/C Ratio	0.09	0.24	0.24	0.05	0.20	0.20	0.25	0.36	0.36	0.15	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	155	442	376	89	373	317	443	1283	574	266	889	
v/s Ratio Prot	c0.05	c0.09		0.01	0.03		0.15	c0.29		c0.11	0.13	
v/s Ratio Perm			0.02			0.00			0.03			
v/c Ratio	0.61	0.36	0.08	0.22	0.14	0.02	0.59	0.81	0.09	0.74	0.51	
Uniform Delay, d1	35.2	25.5	23.7	36.5	26.3	25.7	26.4	23.0	16.8	32.5	25.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.69	1.00	1.00	
Incremental Delay, d2	16.8	2.3	0.4	5.8	0.8	0.1	4.1	4.2	0.2	17.1	2.1	
Delay (s)	52.0	27.8	24.1	42.3	27.1	25.8	28.2	25.2	11.9	49.7	27.2	
Level of Service	D	C	C	D	C	C	C	C	B	D	C	
Approach Delay (s)		32.6			29.6			24.6			33.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Loder Road & Beavercreek

5/14/2015

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	4	18	37	1041	424	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	20	40	1132	461	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1676	464	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1676	464	467			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	97	96			
cM capacity (veh/h)	101	598	1094			

Direction, Lane #	WB 1	SE 1	NW 1
Volume Total	24	1172	467
Volume Left	4	40	0
Volume Right	20	0	7
cSH	315	1094	1700
Volume to Capacity	0.08	0.04	0.27
Queue Length 95th (ft)	6	3	0
Control Delay (s)	17.3	1.2	0.0
Lane LOS	C	A	
Approach Delay (s)	17.3	1.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	0	4	18	3	189	3	538	45	165	1030	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1616			1821	1599	1357	1795		1805	1831	
Flt Permitted		0.74			0.80	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1249			1525	1599	1357	1795		1805	1831	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	0	4	19	3	199	3	566	47	174	1084	47
RTOR Reduction (vph)	0	4	0	0	0	185	0	2	0	0	1	0
Lane Group Flow (vph)	0	24	0	0	22	14	3	611	0	174	1130	0
Heavy Vehicles (%)	4%	0%	50%	0%	0%	1%	33%	5%	0%	0%	3%	6%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		8.2			8.2	8.2	0.8	82.7		19.6	101.5	
Effective Green, g (s)		8.7			8.7	8.7	0.8	84.7		19.6	103.5	
Actuated g/C Ratio		0.07			0.07	0.07	0.01	0.68		0.16	0.83	
Clearance Time (s)		4.5			4.5	4.5	4.0	6.0		4.0	6.0	
Vehicle Extension (s)		2.5			2.5	2.5	2.3	4.5		2.3	4.5	
Lane Grp Cap (vph)		87			106	111	9	1216		283	1516	
v/s Ratio Prot							0.00	0.34		c0.10	c0.62	
v/s Ratio Perm		c0.02			0.01	0.01						
v/c Ratio		0.28			0.21	0.12	0.33	0.50		0.61	0.75	
Uniform Delay, d1		55.2			54.9	54.6	61.8	9.9		49.2	4.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.3			0.7	0.4	12.3	1.5		3.1	3.4	
Delay (s)		56.5			55.6	54.9	74.1	11.3		52.3	8.2	
Level of Service		E			E	D	E	B		D	A	
Approach Delay (s)		56.5			55.0			11.6			14.1	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	685	155	19	267	64	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	721	163	20	281	67	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			884		1124	803
vC1, stage 1 conf vol					803	
vC2, stage 2 conf vol					321	
vCu, unblocked vol			884		1124	803
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		83	95
cM capacity (veh/h)			774		405	381

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	NE 2
Volume Total	884	20	281	67	19
Volume Left	0	20	0	67	0
Volume Right	163	0	0	0	19
cSH	1700	774	1700	405	381
Volume to Capacity	0.52	0.03	0.17	0.17	0.05
Queue Length 95th (ft)	0	2	0	15	4
Control Delay (s)	0.0	9.8	0.0	15.7	15.0
Lane LOS		A		C	B
Approach Delay (s)	0.0	0.6		15.5	
Approach LOS				C	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	194	262	150	634	1063	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1568	1787	1845	3505	1552
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1805	1568	1787	1845	3505	1552
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	196	265	152	640	1074	207
RTOR Reduction (vph)	0	223	0	0	0	95
Lane Group Flow (vph)	196	42	152	640	1074	112
Confl. Peds. (#/hr)	6	4	3			3
Heavy Vehicles (%)	0%	1%	1%	3%	3%	1%
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	15.9	15.9	18.0	76.1	54.1	54.1
Effective Green, g (s)	15.9	15.9	18.0	76.1	54.1	54.1
Actuated g/C Ratio	0.16	0.16	0.18	0.76	0.54	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	287	249	322	1404	1896	840
v/s Ratio Prot	c0.11		0.09	c0.35	c0.31	
v/s Ratio Perm		0.03				0.07
v/c Ratio	0.68	0.17	0.47	0.46	0.57	0.13
Uniform Delay, d1	39.7	36.3	36.7	4.4	15.2	11.4
Progression Factor	1.00	1.00	1.00	1.00	0.29	0.07
Incremental Delay, d2	6.6	0.3	1.1	1.1	0.7	0.2
Delay (s)	46.2	36.7	37.8	5.4	5.1	1.0
Level of Service	D	D	D	A	A	A
Approach Delay (s)	40.7			11.7	4.4	
Approach LOS	D			B	A	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	826	143	46	285	139	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1826		1770	1863	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1826		1770	1863	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	898	155	50	310	151	15
RTOR Reduction (vph)	8	0	0	0	0	12
Lane Group Flow (vph)	1045	0	50	310	151	3
Turn Type			Prot			Perm
Protected Phases	6		5	2	4	
Permitted Phases						4
Actuated Green, G (s)	48.0		4.0	56.0	16.0	16.0
Effective Green, g (s)	48.0		4.0	56.0	16.0	16.0
Actuated g/C Ratio	0.60		0.05	0.70	0.20	0.20
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1096		89	1304	354	317
v/s Ratio Prot	c0.57		c0.03	0.17	c0.09	
v/s Ratio Perm						0.00
v/c Ratio	0.95		0.56	0.24	0.43	0.01
Uniform Delay, d1	15.0		37.1	4.3	28.0	25.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	18.1		23.2	0.4	3.7	0.1
Delay (s)	33.1		60.3	4.7	31.7	25.7
Level of Service	C		E	A	C	C
Approach Delay (s)	33.1			12.5	31.2	
Approach LOS	C			B	C	

Intersection Summary			
HCM Average Control Delay	28.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	76	457	75	119	264	284	486	61	109	802	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3445	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	83	497	82	129	287	309	528	66	118	872	189
RTOR Reduction (vph)	0	0	358	0	0	241	0	0	37	0	18	0
Lane Group Flow (vph)	138	83	139	82	129	46	309	528	29	118	1043	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	11.0	20.0	20.0	7.0	16.0	16.0	22.0	44.0	44.0	13.0	35.0	
Effective Green, g (s)	11.0	20.0	20.0	7.0	16.0	16.0	22.0	44.0	44.0	13.0	35.0	
Actuated g/C Ratio	0.11	0.20	0.20	0.07	0.16	0.16	0.22	0.44	0.44	0.13	0.35	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	195	373	317	124	298	253	389	1557	697	230	1206	
v/s Ratio Prot	c0.08	0.04		c0.05	0.07		c0.17	0.15		0.07	c0.30	
v/s Ratio Perm			c0.09			0.03			0.02			
v/c Ratio	0.71	0.22	0.44	0.66	0.43	0.18	0.79	0.34	0.04	0.51	0.86	
Uniform Delay, d1	42.9	33.5	35.1	45.3	37.9	36.3	36.9	18.4	16.0	40.5	30.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.80	0.71	1.00	1.00	
Incremental Delay, d2	19.5	1.4	4.4	24.4	4.5	1.6	14.2	0.5	0.1	8.0	8.4	
Delay (s)	62.4	34.9	39.5	69.8	42.4	37.9	45.9	15.4	11.4	48.5	38.7	
Level of Service	E	C	D	E	D	D	D	B	B	D	D	
Approach Delay (s)		43.3			44.3			25.5			39.7	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	37.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group