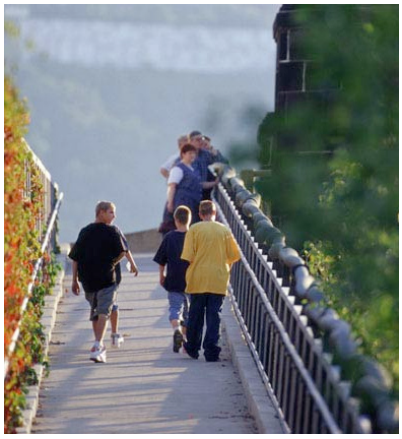
RECOMMENDED PLAN

82ND AVENUE NODE
LOWER MOUNT SCOTT DISTRICT
GREEN LINE
FULLER ROAD TRIANGLE

RECOMMENDED FULLER ROAD STATION AREA PLAN

DAVID EVANS AND ASSOCIATES, INC | URBSWORKS, INC. URBAN DESIGN | DKS ASSOCIATES | CLACKAMAS COUNTY JUNE 2007



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Recommended Fuller Road Station Area Plan

Executive Summary

Introduction

The I-205 Light Rail project, the "Green Line," will be completed in September 2009. The Green Line will add 6.5 miles of track to the regional Metro Area Express (MAX) light rail system, building eight transit stations between the Gateway Transit Center and Clackamas Town Center. This new line will connect the fast-growing southeast suburbs of the Portland Metropolitan area to the existing light rail system and downtown Portland.

The Fuller Road light rail station and its 600-plus space park-and-ride lot will be constructed east of Fuller Road and adjacent to I-205, approximately 1/4 mile east of SE 82nd Avenue (OR 213) between SE Johnson Creek Boulevard and SE Otty Road.

The new Fuller Road light rail station is expected to be a catalyst to invigorate development in the area within walking distance of the station. Therefore, Clackamas County has undertaken a review of its Comprehensive Land Use and Transportation Plan for the area immediately around the station. The Fuller Road Station Area Plan covers approximately ninety acres currently developed with retail, light industrial and residential uses.

The Fuller Road Station Area Plan proposes changes to support Transit Oriented Development (TOD) in areas surrounding the light rail station. The recommended plan proposes that the area within walking distance of the new light rail station be designated a "Station Community," redeveloped with a denser street network, and planned for a mix of housing, office, institutional and commercial uses.

Process

The recommended plan was developed by a team of consultants selected for their expertise in TOD, Clackamas County staff, and Oregon Department of Transportation (ODOT) staff, with review and input from a Technical Advisory Committee representing potentially affected service providers. Area residents in an open house and property owners in stakeholder meetings provided additional oversight and review. A traffic analysis addressed a number of significant transportation concerns.

The Recommended Plan

The vision for the Fuller Road Station Area Plan is that within 20 years (by 2029), the Fuller Road light rail station area will be a vibrant mix of housing, offices and local services with excellent pedestrian connectivity and strong light rail ridership. Design guidelines will ensure high quality, sustainable new development. Transportation systems will continue to be stressed with large volumes of vehicular traffic, but transit ridership and pedestrian/bicycle trips will become more important travel alternatives.

Key components of the recommended plan are described as follows (see Figures 1 through 4):

Station Community Designation

The area roughly within a 1/4-mile walk of the new light rail station will be designated a Station Community. Within this area, special design and transportation standards will apply.

Land Use Plan

The county's land use plan and zoning will be changed to support TOD in the Station Area:

- **Corridor Commercial.** Lands currently planned and zoned Corridor Commercial (primarily located along SE 82nd Avenue) will continue as such. Redevelopment will occur over time, as property owners respond to opportunities created by the light rail station and changes in the market. Corridor Commercial areas in the Station Community are expected to become more intense and diverse than today, mixing retail with medium intensity office and residential land uses. Special design standards to support TOD will be established for the areas zoned Corridor Commercial located in the Station Community. The area will eventually be developed as a series of blocks, with storefronts lining streets and parking lots located to the side and behind buildings.

- **Station Community Mixed Use.** Lands currently planned and zoned Low Traffic Impact Commercial (LTIC) – primarily located adjacent to the light rail station – will be changed to a new plan/zone designation called Station Community Mixed Use. Station Community Mixed Use parcels are expected to develop with a variety of uses in three- to four-story buildings, including housing, office, and institutional uses such as higher education and medical facilities. The area will eventually be developed as a series of blocks, with ground floor retail and service uses encouraged to support a lively, pedestrian-oriented streetscape. This new zoning district will be created in "form-based code" format, which is much different than the county's current zoning ordinance format. Form-based codes explicitly set out desired building form and standards for an area; such codes help shape a high quality built environment and are effective at encouraging TOD.

Transportation Plan

Transportation systems for the station area are complex. The area is expected to become more multi-modal even while roads and streets continue to carry heavy vehicular traffic loads including a large share of through trips. The primary transportation proposals include:

- **Improve the Core Traffic Street Network** to move traffic through the Station Community and provide vehicular access, as well as pedestrian and bicycle access, to businesses and homes in the Station Community. The Core Traffic Streets include SE 82nd Avenue, SE Johnson Creek Boulevard, SE 92nd Avenue, SE Otty Road and the

future SE 79th Street and future SE Fuller to SE King Road connections. Except for minor improvements, projects on these roadways already are included in the County's Transportation System Plan/20-year Capital Improvement Plan.

- **Build/Improve the TOD Street Network.** A transit oriented land use pattern needs a denser street network than exists today to provide better connections for pedestrians, bicyclists, and motorists. The TOD street network includes a range of street types, including local and private streets. The increased access, improved connectivity for pedestrians, shared parking and public amenities created by this dense street grid are fundamental elements of TOD. Street connections are planned at approximately 400-foot intervals with the specific location of some of the future streets to be determined as the area redevelops.
- **Bus Transit Connections**. The TOD street network is designed to facilitate pedestrian movement between bus stops on SE 82nd Avenue and the light rail station.
- **Multi-use Trail Improvements**. The regional, multi-use trail along I-205 is identified as a pedestrian spine for the Station Community Mixed Use area. The trail should be expanded to include separate, dedicated pedestrian and bicycling areas as well as landscaping, lighting and other safety improvements.
- **Potential New Traffic Signals/Pedestrian Crossings**. Locations are identified for either potential additional signals or unsignalized pedestrian crossings on both SE 82nd Avenue and SE Johnson Creek Boulevard.
- **Parking**. Adequate parking will be provided. Parking needs to be convenient and attractive, but not create physical or visual barriers to pedestrians or negatively affect the public realm created by the street system. Shared, on-street parking to support street-facing retail uses will be provided on all public and private streets except SE 82nd Ave and SE Johnson Creek Boulevard. Site design requirements will require surface parking lots to be located to the side of or behind the buildings. Structured parking will be encouraged. The TriMet park-and-ride lot, which will be a surface facility when first constructed, will eventually be structured.
- **Relax the Level of Service Standards**. The Level of Service standards for the designated Station Community should be changed to the levels allowed in the Metro Regional Transportation Plan for the most intense centers; these will be the same standards as those allowed on SE 82nd Avenue in other parts of the Clackamas Regional Center Design Plan area.

Other Urban Design Elements

Additional Urban Design elements critical to TOD in the Station Community include:

- **Storefront Corridors**. SE 82nd Avenue and SE Otty Road will be designated as storefront corridors. New business structures on SE 82nd Avenue will be required to be oriented to the new east-west streets (Overland, Clackamas, and Lamphier). Corner

buildings at the intersections of these streets and SE 82nd Avenue will be oriented to both streets. Businesses on SE Otty Road will be required to be oriented to SE Otty Road. Active uses such as retail or services will be located on the ground floor in storefront corridors to create a lively, pedestrian-oriented streetscape. Businesses generally will line the streets, with no setbacks.

Shared, public, on-street parking to support these storefront uses will be provided on SE Otty Road and the new Overland, Clackamas and Lamphier Streets, but not on SE 82nd Avenue.

- **Plazas and Pocket Parks.** As the Station Area develops, plazas and pocket parks will be important gathering and recreation areas for employees and residents, helping create an interactive community atmosphere.

- **Gateways**. Drivers and transit users will be alerted that they have entered the Station Community by a series of gateways. Examples of gateway elements are taller buildings required at gateway intersections, special architectural features, special street signs, lighted street signs, or crosswalks made of special materials.

Next Steps

In fall 2007, Clackamas County staff will prepare a new form-based code section of the Zoning and Development Ordinance (ZDO) for the new Station Community Mixed Use designation, and also draft revisions to the Corridor Commercial section of the ZDO. These ZDO section amendments, as well as Comprehensive Plan language and map amendments for the Fuller Road Station Community, will be submitted to the Planning Commission and Board of County Commissioners for public hearings and adoption in early 2008. The public will have opportunities to review and discuss the proposed code in an open house and during public hearings.

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Information also is available on the project's webpage:
http://www.co.clackamas.or.us/dtd/lngplan/fuller/

I. BACKGROUND

The I-205 Light Rail extension, the "Green Line", to be completed in September 2009, will add 6.5 miles of track and eight transit stations between the Gateway Transit Center and Clackamas Town Center, connecting one of the region's fastest-growing areas to the existing Portland metro area's light rail system. The Fuller Road light rail station and 600-plus space park-and-ride lot will be constructed approximately 1/4 mile south of the SE Johnson Creek Boulevard interchange on the west side of the I-205 interstate highway. The new station and improved transit service likely will be a catalyst for invigorating an area that has not developed at the same rate as many other parts of the region.

The Fuller Road Station Area Plan covers approximately 90 acres currently developed with retail, light industrial and residential uses, and is located in the southeast suburbs of the Portland, Oregon Metropolitan Area. The unincorporated area is inside the Portland Metropolitan Urban Growth boundary and fully served by sanitary sewer, water and other urban services. Planning and other general governmental services are provided by Clackamas County.

The study area, shown in Figure 1, includes the area within a 1/4-mile walk of the station for land use issues, and approximately a 1/2-mile radius of the station for transportation issues. The study area is impacted by I-205, an interchange with I-205 at SE Johnson Creek Boulevard, and SE 82nd Avenue (OR 213).

Development in the Fuller Road Station Area is regulated by Clackamas County through implementation of its Comprehensive Plan which covers land use and transportation. The Fuller Road Station Area is part of the "Clackamas Regional Center Area (CRCA) Design Plan" one of the special "design plan" subareas regulated in the Comprehensive Plan. The Fuller Road Station Area Plan proposes changes to the CRCA Design Plan, as well as to the county's Transportation System Plan and Zoning and Development Ordinance (the ZDO). Because the Plan recommends a form based code rather than the county's traditional use and standards based code, ZDO amendments will be produced in a separate process later in 2007.

II. PURPOSE AND ORGANIZATION OF THE PLAN REPORT

This plan report presents the information used to develop the concept and support the recommended changes to the Comprehensive Plan and ZDO to implement the plan. The report sections include:

- What the Plan will Achieve: Vision, Guiding principles and evaluation measures;
- Highlights of the Analyses
    - Existing land use and transportation conditions
    - Opportunities and constraints within the project area
    - Analysis of the Alternatives

- Description of the Recommended Plan

Figures will be included at the end of the report, rather than interspersed in the document. Tables will be included within the document.

Five Appendices provide more detailed information regarding:

- Implementation of the Plan
- Development Assumptions underlying the Plan
- Draft Comprehensive Plan language
- Transportation modeling analysis of the Alternatives
- Sensitivity Analysis of the Recommended Plan

III. PLANNING PROCESS

Clackamas County Planning Division staff managed the Fuller Road Light Rail Station Area project (September 2006-July2007), with extensive coordination with the Oregon Department of Transportation (ODOT). The consultant firms of David Evans and Associates (DEA), Urbsworks, and DKS & Associates provided expertise on Transit Oriented Development (TOD) and transportation analysis, and worked with county and ODOT staff to develop the plan. Funding was provided by the Oregon Transportation and Growth Management (TGM) program and by Clackamas County.

The consultants, county and ODOT staff worked together as the project team to research the area, develop concepts, conduct stakeholder and expert reviews, and develop the recommended plan. The major steps in developing the plan included:

- **Existing Conditions**. The project team assembled information on the existing transportation system, transit service, land uses, current market values and other characteristics needed to identify opportunities and constraints in the project area.
- **Opportunities and Constraints**. An understanding of opportunities and constraints helped lead to a more feasible land use and transportation alternatives.
- **Vision, Guiding Principles and Evaluation Measures**. The project team developed a vision, guiding principles and evaluation measures with review by the Technical Advisory Committee (the TAC) and public.
- **Land Use and Transportation Concept and development of Alternatives**. The above information, coupled with input from area residents and businesses, helped the project team develop a land use and transportation concept, followed by creation of two alternatives.
- **Review and analysis of Alternatives**. The two alternatives, each with projected development in housing, retail and institutional uses, were analyzed for potential traffic impacts. Review opportunities included a public open house, TAC meetings,

stakeholder meetings, and Planning Commission and County Commissioner study sessions.

- **Recommended Plan**. Based on all the materials and reviews to date, the project team developed the plan recommendation.

The public involvement process included discussions with area residents, business representatives and stakeholders, beginning with meetings in November 2006. A public open house, held March 1, 2007, and a second set of stakeholder meetings in April 2007 allowed property owners and interested persons to review and comment on plan alternatives. A project website and other outreach activities responded to opportunities during the course of the project to provide updated information to the community. (Project website: http://www.co.clackamas.or.us/dtd/lngplan/fuller/)

The Technical Advisory Committee (TAC), composed of area service providers, helped the staff and consultant team develop a better understanding of the area, and reviewed and suggested revisions to the project materials and Recommended Plan. Agencies invited to be members of the TAC included:

- Clackamas County Development Agency and Traffic Engineering
- Oregon Department of Transportation
- TriMet
- City of Milwaukie
- City of Happy Valley
- Clackamas County Wastewater Environmental Services
- Clackamas County Sheriff's Department
- Clackamas County Fire District #1
- Metro
- Oregon Department of Land Conservation and Development
- Clackamas River Water District

A meeting with developers and development finance and sales experts was held in December 2006 to advise the project team on the market conditions for redevelopment and feasibility of the evolving alternatives.

Work sessions were held with the County Planning Commission and Board of County Commissioners to inform Commission and Board members of the plan alternatives and present findings of the analyses.

IV. WHAT THE PLAN WILL ACHIEVE

The Fuller Road Station Area Plan was undertaken to create Comprehensive Plan amendments and an implementation program to support uses that will benefit from and support the region's investment in light rail.

When the I-205 Light Rail opens in 2009, the area within walking distance of the Fuller Road station will have a patchwork of land uses ranging from older housing and businesses to

large format retail. One of the first tasks of the project team was to develop a new vision of this station area, based on the principles of TOD, and also to devise guiding principles and evaluation measures to guide development of a plan.

A. Vision for the Fuller Road Station Area

The vision of the Fuller Road Station Area Plan is that new development will utilize and support the region's light rail investment, creating a "transit oriented development." Within 20 years (by 2029), the area within walking distance of the station will have excellent pedestrian connectivity, local services and a mix of uses that increase light rail ridership and provide customers for local businesses. These new uses may include a major employer or institution located in the area adjacent to SE Fuller Road. Design guidelines will have enhanced the quality of new development, making it sustainable and transit oriented as well as a vibrant, active community. The park-and-ride lot will be replaced by structured parking at the station.

In 20 years, the Fuller Road station area will be one of the more attractive and desirable of the diverse neighborhoods that make up the Clackamas Regional Center Area, and will be one of the reasons the greater Clackamas Regional Center Area is considered the dominant commercial and business center of the east Portland metropolitan area.

B. Guiding Principles

To achieve this vision, the Fuller Road Station Area plan was designed to:

1. Consider the needs of the people who will live and work there

- Plan facilities, consider uses, and incorporate design techniques so the transit patrons and the people who live and work in the area will feel safe and secure.
- Ensure that area residents are well served by services, public schools, parks, other community services and amenities, and transportation.

2. Plan for business

- Consider uses and redevelopment programs that support a mix of businesses in the area, including retail and large and small employers. The plan should recognize that this area will serve a number of business niches, including those that benefit from transit, as well as businesses that benefit from the freeway interchange, SE 82nd Ave, and the other features of the area.
- Ensure that the presence of the light rail station provides economic opportunity for the area residents and businesses.

3. Plan for excellent access and mobility to and within the station area for all modes of travel

- Create stronger linkages between the station and parcels targeted for redevelopment. For example, consider smaller blocks and more frequent spacing of streets through large parcels.

- Improve and extend the street and pedestrian/bike path network to the light rail station. Consider street crossings and connections through large adjacent parcels.
- Improve connections across SE 82nd Avenue to provide better access for pedestrians and bicyclists who live west of the project area.
- Make bicycle commuting a viable option (possibly the "option of choice" for the Green Line) through the provision of amenities such as bicycle parking facilities. Learn from other communities' successes, such as Bike station facilities in Seattle.
- Build upon the existing I-205 multi-use trail; consider improvements to increase use during non-daylight hours.
- Enhance opportunities for bus-light rail transfer points through design and land use.
- Consider the capacity of the road network for auto and truck traffic.
- Address County concurrency and Oregon's Transportation Planning Rule requirements that may restrict the ability to intensify the area.
- Consideration of high intensity residential, commercial and mixed-use development scenarios should not be restricted based solely on the amount of traffic a particular use would generate.
- Use most current trip generation methodologies to understand the true impact and benefits of transit oriented mixed-use land use and development scenarios.
- The Planning process should focus on an optimum land use mix that supports bicycle, pedestrian and transit mobility.

4. Use urban design to create community character

- Plan for the area immediately adjacent to the station to be developed at urban densities with structures of 2, 3 or more stories and structured parking.
- Use streetscape improvements to improve safety, encourage pedestrian and transit uses and enhance area attractiveness and identity.
- Provide for a mix of uses, especially residential uses within walking distance of the station.
- Develop an identity for the area that improves neighborhood image and provides a distinctive neighborhood focus. Plan for the station area to be viewed as one of the many diverse neighborhoods that make up the Clackamas Regional Center Area.
- Coordinate transit amenities such as the light rail and bus shelters, bicycle storage and environmental graphics with redevelopment so that the station area is visible, attractive and memorable.
- Plan for public amenities, such as street treatments, seating areas, public art, shared parking, gathering places and pocket parks.

- Seek to mitigate the barriers to the Fuller Road Triangle (the area east of SE Fuller Road between SE Johnson Creek Boulevard and SE Otty Road) that are created by I-205 and the large format retailers on the west side of SE Fuller Road.

5. Plan for private and public investment

- Plan for Urban Renewal resources to make strategic investments in public infrastructure that support the Plan.
- Consider public acquisition of property to help direct the desired type of development and consolidate parcels to make them more attractive to developers.
- Seek early development successes. Work with motivated property owners and developers to facilitate desired development, even if small scale.
- Build partnerships with existing property owners and businesses.
- Use the investment in light rail and the patronage created by the station to leverage compatible development.

6. Plan for transition

- Focus on the future of the area, one that provides attractive opportunities for future residents. However, consider how the conversion will impact current people and resources.
- Engage existing residents and inform them of the process.
- Consider the potential loss of affordable housing and solicit input from local affordable housing advocates and land/business owners.

C. Evaluation Measures

The plan will be deemed effective if:

- The recommended Comprehensive Plan and Zoning and Development Ordinance sections amended as part of the planning process are clear, using specific language, requirements and design standards to achieve the guiding principles.
- Development strategies use feasible resources, including the North Clackamas Revitalization District and other County and state infrastructure funding programs to achieve the guiding principles.
- The plan attracts developer interest in the area.
- Transportation limitations are clearly identified, the solutions proposed support the station area plan, and the planning process builds consensus on a workable strategy to provide transportation infrastructure to serve the area.

V. HIGHLIGHTS OF ANALYSES

The Fuller Road Station Area Plan is based upon three main analyses of the area; existing conditions, opportunities and constraints, and analysis of the two alternative development scenarios.

A. Existing Conditions

The Fuller Road Study Area is located at the western base of Mt. Scott, but topography in the study area itself is fairly flat. I-205 is an impediment to easy access to the station from residential areas in Mt. Scott. No streams, wetlands or other significant natural resources are found in the study area.

1. Built Environment

The study area environment has been substantially modified by people since the area was settled, and structures in the area reflect different waves of development, from an historic 1920's home to the late 1990's redevelopment of the retail areas. Figure 2, an aerial photo of the study area, illustrates existing development patterns.

The Fuller Road Study Area is dominated by retail development along SE 82nd Avenue west of SE Fuller Road. Much of this area has redeveloped since construction of SE Johnson Creek Boulevard interchange with I-205 in the 1990s. This area, zoned Corridor Commercial (CC), is primarily developed with large, surface parking lots serving single story, large format retail buildings. In the southeast quadrant of the SE 82nd Avenue/SE Johnson Creek Boulevard intersection, the 30-acre Johnson Creek Crossing retail center includes several large stores: Home Depot, Joe's, Babies R Us, Best Buy and PetCo, and a variety of banks, restaurants and other services. Walmart is located south of the SE Fuller Road/SE Otty Road intersection. There are a variety of other newer redeveloped retail stores in the area as well as a few older stores that predate construction of the interchange.

The east portion of the land use study area – the location for the light rail station and park-and-ride lot – has a different character than the CC areas along SE 82nd Avenue. This 26-acre area between SE Johnson Creek Boulevard and SE Otty Road, including two parcels south of SE Otty Road near I-205, are zoned Low Impact Traffic Commercial (LTIC). This zone, adopted in 1998, is intended to allow commercial development, but only businesses that will not generate high traffic volumes. Parcels in the LTIC area typically are fairly small. Existing uses in this area, such as single family homes and a few manufacturing businesses, predate the LTIC zoning.

Fifteen of the 37 homes (single family homes, mobile homes and duplexes) in the LTIC area are being removed for construction of the station and park-and-ride lot. Most of the homes are considered "affordable" housing, with an average County

Assessor's value of $117,000; the highest value residential property was $172,000.[1] Several houses have been converted to other uses, such as an income tax consulting firm, business office for a storage company, and a parsonage. An active church is located on Battin Road, and four industrial uses are located along SE Otty Road.

Table 1 summarizes the acreage for major land use types in the Corridor Commercial and LTIC areas:

Table 1 Summary of Land Uses, Fuller Road Study Area

Land Use	Acres	% of Total
Auto service	3.80	7%
Church	1.03	2%
Construction, including outdoor storage of construction supplies	3.05	5%
Industrial	5.44	9%
Multiple Uses	0.37	1%
Office	0.65	1%
Outdoor RV Storage	0.63	1%
Residential	10.53	18%
Retail	30.12	52%
Service	0.74	1%
Vacant	1.49	3%
TOTAL	57.85	100%

Source: Clackamas County Planning Staff, survey of land uses, fall, 2006.

2. Pedestrian and Transit Environment

SE 82nd Avenue is a major bus corridor, generating a significant amount of pedestrian traffic near the bus stops. The roadway has sidewalks that serve transit riders as they board and exit the buses.

The smaller retail uses located along SE 82nd Avenue provide a more pedestrian-scale environment even though on-street parking access from the road is not available. The large retail stores located behind the smaller retail do not provide a pleasant pedestrian setting mainly due to the large parking lots and general lack of

[1] Note: The County Assessor's data are not necessarily as good an indicator of the actual value of a property as it has been in the past. Current tax laws do not tax based on "true cash value," and there is less scrutiny of the "values" information provided by the Assessor's office.

pedestrian amenities, such as separated walkways through the parking areas, benches, lighting, and landscaping. The Johnson Creek Crossing shopping center provided a pedestrian access through the center as a condition of development. This takes the form of a single sidewalk adjacent to a drive aisle in the parking lot, with no landscaping, on-street parking or storefront development. A pedestrian way continues through a break in the buildings at the east end of the center, terminating at a truck loading area close to SE Fuller Road.

Pedestrian connections outside of this corridor are more intermittent in the station area. SE Fuller Road has sidewalks only along the west side of the street and pedestrians using this sidewalk face the loading docks and service entries of the large retailers. Along SE Otty Road, sidewalks are located only on the south side of the roadway, while sidewalks are provided along both sides of SE Johnson Creek Boulevard west of SE Fuller Road.

As part of the construction of the new light rail facilities, TriMet will provide some changes to SE 82nd Avenue to improve access for vehicles entering the park-and-ride lot. An intersection project at SE 82nd Avenue/SE Otty Road will improve pedestrian access from the west side of SE 82nd Avenue.

The environment immediately around the light rail station is mainly auto-oriented. When the I-205 Light Rail extension opens in 2009, the Fuller Road station will be sandwiched between the freeway and surface park-and-ride lot . Two sidewalks through this parking lot will ease pedestrian movement to SE Fuller Road. However, from SE Fuller Road transit riders wanting to move to or from the light rail station and bus stops on SE 82nd Avenue will need to walk through the parking lots in the Johnson Creek Crossing shopping center or along SE Otty Road where sidewalks are intermittent. The distance from the Fuller Road light rail station to bus stops on SE 82nd Avenue will be around 1,600 feet.

3. Market Values

Real estate values and potential acquisition costs for parcels within the LTIC area were evaluated to determine the potential costs for land acquisition and relocation of existing uses that may not be compatible with the station area community. Key findings of the market values assessment included:

- The LTIC zone allows commercial uses although the majority of existing improvements are single family residential homes and industrial uses.
- Total acquisition costs for the LTIC area (not including land for the park and ride lot which has already been acquired) is approximately $12 million, including approximately $1 million for relocation costs.
- Approximately $250,000 of the relocation costs would be for relocating existing industrial uses to another location outside of the station area.

4. Transportation

Transportation in the Fuller Road Study Area is dominated by vehicular traffic on I-205, SE 82nd Avenue (OR 213), and the connections between them. The extensive area of retail/commercial land uses on SE 82nd Avenue generates higher traffic volumes during the weekday PM and Saturday peak hour periods. Analysis of existing traffic volumes and operations indicated that all intersections currently perform at ODOT or County mobility standards; however, there is potential for long queues and delay at some intersections.

A major traffic safety issue is the operation of the SE Johnson Creek Blvd/I-205 interchange and its impact on nearby intersections. The signalized SE Johnson Creek Boulevard/SE Fuller Road intersection is located approximately 300 feet west of the southbound freeway ramps. The distance between the ramp and SE Fuller Road does not meet the *Oregon Highway Plan* spacing standard which requires 1,320 feet between a ramp signal and the next signalized intersection.

ODOT plans to construct a median in SE Johnson Creek Boulevard to restrict turning movements at SE Fuller Road: the southbound approach (north leg of SE Fuller Road) will maintain a southbound left turn and right in/right out turns; the northbound approach will have only right in/right out turns allowed. Left turns from SE Johnson Creek Boulevard north or south onto SE Fuller Road will be prohibited. In the near term, the intersection will remain signalized and allow pedestrians to cross SE Johnson Creek Boulevard.

ODOT and Clackamas County have long range plans to reconstruct the SE Johnson Creek Blvd./I-205 interchange, which will require the north leg of SE Fuller Road to be completely cul-de-sac'd at SE Johnson Creek Boulevard, while the south leg of SE Fuller Road may retain right-in/right-out movements.

TriMet bus routes #72 (along SE 82nd Avenue) and #31 (along King Road to south on SE 82nd) serve the study area. The highest transit activity occurs at SE King Road with over 250 on/off riders per weekday in the southbound direction on SE 82nd Avenue, and over 150 on/off riders per weekday in the northbound direction.

TriMet does not propose changes to existing service when the I-205 light rail line opens. Transit service within the station area will consist of the new light rail line and existing bus service on SE 82nd Avenue. Direct bus-light rail connections will made at the Clackamas Town Center transit center, but not at the Fuller Road station.

Generally, the study area has sidewalks and some bicycle facilities (primarily on SE Johnson Creek Boulevard, SE 92nd Avenue and SE Otty Road). Existing pedestrian and bicycle data showed that pedestrian activity on SE 82nd Avenue is the highest near the intersection with King Road, with approximately 70 pedestrian movements counted there in one hour. Bicycle data showed limited activity within the study

area in on-street facilities; the highest activity recorded was seven movements during a peak hour.

5. **Street Environment**

The streets in the Fuller Road Study Area both carry vehicular and other modes of traffic, and are the "public realm" that the community shares.

- **SE 82nd Avenue.** SE 82nd Avenue (OR 213) is a State of Oregon *District Urban* Highway with five lanes and the main north-south thoroughfare through the station area. The street design and right-of-way width vary depending on location, as the street is gradually widened and improved with each redevelopment of properties fronting the street. South of SE Johnson Creek Boulevard, a bicycle lane/shoulder is provided on the west side of the road. Sidewalks are provided on both sides of the road. The intersection at SE Johnson Creek Boulevard is signalized and has pedestrian crosswalks.

  SE 82nd Avenue near SE Otty Road has fewer pedestrian amenities than the more recently developed portions of the street. Sidewalks are generally narrower and provided only on the east side of the roadway.

- **SE Johnson Creek Boulevard.** SE Johnson Creek Boulevard, a five-lane facility, is the main east-west thoroughfare in the station area. It connects to I-205, east to residential areas on Mount Scott, and west to industrial and residential areas. The street has two left turn lanes to southbound SE 82nd Ave, bicycle lanes, and sidewalks on both sides of the street. ODOT retains access control along SE Johnson Creek Boulevard between I-205 and SE 82nd Avenue.

  Signalized intersections with pedestrian crossings are located at SE 82nd Avenue and SE Fuller Road. As previously described, the SE Johnson Creek Boulevard/SE Fuller Road intersection will be modified in summer 2007 to prevent left turns from SE Johnson Creek Boulevard north or south onto SE Fuller Road.

- **SE Otty Road.** SE Otty Road, a two-lane facility, is an important east-west road through the station area. Some retail and industrial activities front the street. SE Otty Road provides important connections to residential areas to the east of Interstate 205.

  The SE Otty Road/SE 82nd Avenue intersection has a right-turn pocket, bicycle lanes and sidewalks on both sides of the street, a narrow and discontinuous sidewalk on the north side, and a wider sidewalk with a narrow planting strip along the south side. Future plans may include left-turn lanes and the removal of the planting strip for the additional right-of-way needs.

  SE Otty Road immediately east of SE Fuller Road has a left-turn lane, bicycle lanes on both sides of the road and a sidewalk on the south side of the street. The

north side of the street has a gravel shoulder. The sidewalk and bicycle lanes on the south side of the street continue across I-205.

- **SE Fuller Road.** Between SE Johnson Creek Boulevard and SE Otty Road, SE Fuller Road is a two-lane north/south collector with a gravel shoulder on the east side and a sidewalk and planting strip on the west side. This street provides important access to existing residences, businesses, and a church located in the Fuller Road triangle. SE Fuller Road also provides service access to loading docks for the Johnson Creek Crossing businesses. Historically, SE Fuller Road continued south and west to connect with the portion of SE Fuller Road that begins at SE King Road.

  As described previously, changes planned for the SE Fuller Road/SE Johnson Creek Boulevard intersection, will restrict turning movements to right in/right out turns from the northbound approach. A portion of SE Fuller Road between Con Battin Road and the back entrance to Johnson Creek Crossing also will be widened in conjunction with the construction of the light rail park-and-ride.

- **Con Battin Road.** SE Con Battin Road is a narrow, local street with no outlet and no sidewalks. The street will be widened to two travel lanes when the light rail and park-and-ride are constructed. The cul-de-sac's orientation will also change from north-facing to south-facing to better serve the park-and-ride traffic. A curb-abutting sidewalk also will be added to the south side of the street while a gravel shoulder will remain on the north side.

- **I-205 Multi-Use Trail**. This regional recreational trail located within the I-205 right-of-way is an important bicycle and pedestrian connection through the station area. It runs unimpeded from north to south through the station area with underpasses at SE Johnson Creek Boulevard and SE Otty Road. Spurs of the trail connect sidewalks and bicycle lanes on these two roads with the main trail. The paved trail is approximately 10 feet wide and is fenced on both sides. Trees are scattered along the trail, with higher concentrations around the future light rail station. With construction of the light rail facility, many of these trees are expected to be removed.

B. Opportunities and Constraints

The project team identified the major opportunities and constraints within the station area to guide the development of the land use and transportation concept, alternatives and recommended plan. The opportunities and constraints were grouped into five topics: business, residents, access and mobility, community design and character, and private and public investment. The major opportunities and constraints are summarized in the following tables.

1. Business

Opportunities	Constraints
Visibility from I-205	Little visibility and access into the LTIC portion of the study area from SE 82nd Avenue and SE Johnson Creek Boulevard.
Clackamas Regional Center Area plan encourages a mix of uses	Parcelization could make larger scale development more difficult in the LTIC area.
Low building to land values could encourage redevelopment	Residual industrial uses may not be compatible with residential/mixed use redevelopment
Large parking areas provide potential for infill development.	Redevelopment is contingent upon the desires of commercial property owners.

2. Residents

Opportunities	Constraints
Walking distance to employment areas (low and medium wage jobs)	Long distance to parks and schools
Grocery store within one-half mile of light rail station	Project area is noisy
Both affordable and upscale housing in or near the project area	Existing conditions may not make area desirable for high end housing
Community-serving institution—church—in station area	

3. Access and mobility

Opportunities	Constraints
Excellent access to I-205	High traffic on SE 82nd Ave, Johnson Creek Blvd, and SE Otty Rd. Anticipated local and regional traffic growth will exceed roadway capacity.
Bicycle connections in north-south direction along I-205 multi-use trail and in east-west direction via Johnson Creek Blvd bike lanes. Located near the Springwater Corridor trail, providing regional east-west connections.	1,000 feet between crosswalks on SE 82nd Ave and SE Johnson Creek Blvd. Existing crosswalk timing may not be adequate for some users.
Well-served by transit	Incomplete and inconsistent pedestrian environment. Noisy and unpleasant.
Future improvements to SE Johnson Creek Boulevard/I-205 interchange will increase capacity of interchange.	Limited access to station area for pedestrians and vehicles

Opportunities, continued	Constraints, continued
Multi-use trail parallel to I-205 provides excellent access to light rail station	I-205 multi-use trail is not lit, and is narrow and fenced off physically and visually from adjacent properties
	Pedestrian and bicycle access is difficult across I-205 due to steep topography, existing bridge design, and bridge spacing
	Improvements to SE Johnson Creek Boulevard/SE Fuller Road and the I-205/SE Johnson Creek Boulevard interchange will restrict access onto SE Fuller Road.

4. Community design and character

Opportunities	Constraints
Some mature and significant trees within station area	Rear/service side of strip retail buildings face SE Fuller Rd and station area not visually appealing
Walking distance to restaurants and discount retail store (WalMart)	All of the trees in park-and-ride area except one large oak are being removed for grading of the park-and-ride
Potential for linear greenway and recreation trail along I-205	Steep topography across I-205 makes pedestrian and bicycle connections difficult.
"Classic Box" house provides some historic character	Existing residential areas have limited visibility from I-205 and SE 82nd Avenue.
Existing residential areas provide affordable housing.	Few vacant sites in the project area
Two vacant or nearly vacant parcels larger than 1 acre.	Disconnected mix of industrial uses adjacent to residential buildings.
Although highly parcelized, the project area has some larger lots. Some owners own contiguous parcels	Immediately adjacent to noise and air pollution from I-205.

5. Private and public investment

Opportunities	Constraints
Project area is located in the North Clackamas Urban Renewal District and portions are located in the Clackamas Town Center Urban Renewal District	Existing zoning districts limit development based on limited transportation capacity on SE 82nd Avenue.

C. Analysis of Alternatives

Two land use and transportation alternatives were developed and evaluated for their development potential and the potential impacts to the local and regional transportation systems. The alternatives then were reviewed by affected agencies at the TAC meetings, general public in an open house, area property owners at small group meetings, and the County's Planning Commission and Board of Commissioners in study sessions.

The recommended plan is based on these alternatives, results of the analyses, and community response to the alternatives.

The two alternatives are illustrated in Figures 3, 4, 5 and 6. The amounts and types of development assumed are summarized in Table 2.

Table 2: Land Use Summary for Alternatives 1 and 2

Land Use	Land Use Alternative 1	Land Use Alternative 2
Office/Institutional	727,200 sq. ft.	172,800 sq. ft.
Commercial	607,950 sq. ft.	478,050 sq. ft.
Housing	746 dwelling units	233 dwelling units

1. Alternative 1: 82nd Avenue Node

The 82nd Avenue Node alternative was described as:

> *Extends the business environment now on SE 82nd Avenue east to the light rail station. All development is encouraged to become more intense and would be designed to support pedestrians and transit.*

This alternative focused development along SE 82nd Avenue and SE Fuller Road. Commercial uses along SE 82nd Avenue would increase in density, focused along the new street grid that crosses the existing large parcels. SE 82nd Avenue would be improved to provide on-street parking. The development pattern would be higher in density than today and support a combination of retail, office, and residential uses, creating a range of employment and housing options within the station area.

SE 82nd Avenue would be redesigned to include wider sidewalks, planting strips, bicycle lanes and a landscaped center median/pedestrian refuge. The key feature of SE 82nd Avenue in Alternative 1, however, was that it provided on-street parking to support street fronting businesses. Improvements to SE Johnson Creek Boulevard would include wider sidewalks, plant strips, bicycle lanes and a landscaped, center median/ pedestrian refuge, making SE Johnson Creek Boulevard less of a barrier between residents to the north and the commercial areas to the south.

Similar treatments, although on a smaller scale, would improve SE Otty Road and SE Fuller Road to "Minor Boulevards" with wider sidewalks, plant strips, on street parking, bicycle lanes and a center median.

Trails and parks included the I-205 multi-use trail with improved connections and safety features, and plazas to be located within office/residential areas.

2. Alternative 2: Lower Mount Scott District

The Lower Mount Scott District alternative was described as:

> *Extends the residential community east of I-205 west to the areas just north and south of the light rail station. Along with nearby medium-intensity commercial and office uses, the area would be designed to support pedestrians and transit.*

Alternative 2 would have a more prescriptive land use pattern than Alternative 1. Development in the area between SE Fuller Road and I-205 would focus on office and institutional uses ranging between two and four stories. High-density residential uses (up to 30 units per acre) would be permitted north of Con Battin Road and south of SE Otty Road. Development patterns along SE 82nd would remain similar to today's development, probably one-story retail buildings.

SE 82nd Avenue would be redesigned with wider sidewalks, planting strips, bicycle lanes and a landscaped, center median/pedestrian refuge. No on-street parking would be provided. The key differences between a major boulevard on SE 82nd Avenue in Alternative 1, and SE 82nd Avenue in Alternative 2, is that on-street parking was not proposed in Alternative 2. SE Johnson Creek Boulevard, SE Otty Road and SE Fuller Road would be the same street type in both alternatives.

Trails and parks included redevelopment of the I-205 multi-use trail into a linear parkway with small "pocket" parks where local streets end at the multi-use trail.

3. Transportation Analysis

DKS and Associates, Inc. evaluated the two land use alternatives and a no-build scenario. The no-build alternative analysis assumes that all planned projects in the County TSP/20-Year CIP will have been constructed. The land uses assumed under this scenario are the land uses allowed under the current plan, i.e., the current CC and LTIC zones, including new development. The no-build alternative was used as a benchmark for comparing the traffic impacts of the alternatives to the traffic expected to be generated within the project area under the current Comprehensive and Transportation plans. This is important, because under the state *Transportation Planning Rule*, if proposed Comprehensive Plan changes would significantly impact traffic operations, then mitigation measures to resolve that impact must be planned.

- The analysis of the year 2030 future no-build alternative revealed that four intersections -- SE 82nd/SE Johnson Creek Boulevard, SE 82nd/SE Otty Road, SE

92nd Avenue/SE Johnson Creek Boulevard, and SE 92nd Avenue/SE Otty Road -- would operate below acceptable jurisdictional standards.

- Alternative 1 traffic would cause significant effects (reduce LOS operating conditions) at SE 92nd/SE Johnson Creek. An improvement project was identified that could mitigate this impact.
- Alternative 2 would have enough potential for trip reduction with the proposed zoning so that none of the study intersections would be degraded beyond anticipated future no-build conditions.

Two options for road network connections were tested along SE 82nd Avenue between SE Johnson Creek Boulevard and SE Otty Road. The first option retained the existing signal at SE Overland Street as the only signal between SE Johnson Creek Boulevard and SE Otty Road. The second option removed the existing signal at SE Overland Street and replaced it with two new signals, one at SE Clackamas Street (approximately 500 feet to the south of SE Johnson Creek Boulevard) and one at SE Lamphier Street (approximately 500 feet north of SE Otty Road). There is approximately 700 feet between these two proposed signals.

A queuing assessment was conducted for both land use alternatives on the two options for roadway configurations. The queuing assessment indicated that Alternative 1 may have deficient queuing in the northbound direction along SE 82nd Avenue at SE Johnson Creek Boulevard where queues could back up beyond and block the proposed signal at SE Clackamas Street. Alternative 2 did not show any potential queuing issues that would block the two new proposed signals on SE 82nd Avenue.

4. Trip Generation

Table 3 summarizes the estimated future trips for the Land Use alternatives and compares them to the No Build scenario.

Table 3: Trip Generation Comparison for Alternatives 1 and 2

	PM Peak Hour Motor Vehicle Trips			
Land Use	**No-Build (Alternative 1 Boundary)**	**Alternative 1**	**No-Build (Alternative 2 Boundary)**	**Alternative 2**
Commercial/Retail	4,375	1,715	3,445	1,360
Housing	50	285	260	90
Office/*Institutional		1,545		340
**Other	500	440	500	440
Subtotal	4,925	3,985	4,205	2,230
Trip Reduction				

***Pass-By (5-50%)	965	160	750	130
Internal (%)	110	275	85	85
Existing/Net New Trips	3,850	3,550	3,370	2,015

Source: David Evans & Associates. Trip estimated from data in ITE Trip Generation Manual
*Office trip generation rates were used for institutional land uses.
**This category includes existing land use such as light industrial, and also the future park and ride lot, which is assumed in each future scenario.
***The percentage of pass-by trips varies by land use, based on data in the ITE Trip Generation Manual.

Trip generation for the year 2030 was estimated for the no-build alternative, Alternative 1 and Alternative 2. Trip generation estimates are based on survey data found in the Institute of Transportation Engineers (ITE) Trip Generation Manual.[2] Trip rates were selected and multiplied by the number of dwelling units and square footage of other land use categories to estimate total PM peak hour trips.

These future alternative trip generation estimates were compared to the no-build alternative to determine if the proposed alternatives would generate more or fewer trips. This analysis showed that Alternatives 1 and 2 would generate fewer motor vehicle trips than the no-build alternative during the PM peak hour. Alternative 2 would generate fewer trips than Alternative 1 due to a smaller land use area and because it has significantly less office and institutional uses. Alternative 2 would also have a greater impact than Alternative 1 on overall trip reduction potential. Alternative 2 would generate approximately 1,355 fewer trips than the no-build alternative, while Alternative 1 would generate approximately 300 fewer trips than the no-build alternative.

5. Comments on the Alternatives

Comments were gathered on the Alternatives at the public open house, three stakeholder meetings and a briefing with the county commissioners.

The public open house was held on March 1, 2007. Meeting invitations were mailed to 1,330 property owners within ½ mile of the station location. At the open house, the project team, as well as staff from ODOT and TriMet, provided information and received feedback on the TOD concepts. The 47 open house attendees received background information on the Fuller Road planning process and an eight-page handout on the alternatives under review. Participants discussed details of potential plans with county staff and project consultants. In addition, attendees learned about recent decisions about changes to access at the SE Fuller Road/SE Johnson Creek Boulevard intersection, a key access for area businesses and residents. TriMet staff discussed the recently started construction of the light rail line.

[2] Trip Generation (7th Edition), Institute of Transportation Engineers, 2003.

Three stakeholder meetings were held in April, 2007 with owners of three large, key properties in the study area. The alternatives were described and different approaches to implementation discussed.

A study session with the Board of County Commissioners provided an opportunity for check-in of the concepts being proposed. The commissioners expressed their interest in the new ideas for the area and identified concerns.

Comments from the open house on the two alternatives included:

- People were concerned about traffic impacts to 92nd Avenue. There were concerns about increases in traffic generally, and specific issue raised that truck traffic would be forced onto 92nd and Otty Road and create a hazard for traffic as the corner for a right hand turn from SE 92nd to SE Otty Road is sharper than 90 degrees. One open house attendee was concerned about the impacts of the pedestrian bridge on traffic on SE 92nd Avenue.
- Open house attendees generally liked the parks and plazas ideas, with a slight preference for the parks concept on Alternative 2.
- People either liked or hated the idea of a pedestrian bridge across I-205. Concerns included the feasibility of building such a long bridge, the cost, and traffic impacts.
- People were concerned about the feasibility of the alternatives. Of particular concern was the need to relocate significant numbers of businesses and residents, especially low-income residents who might be unable to own homes anywhere else.
- Both alternatives had support from members of the public at the open house, although more attendees voiced support for Alternative 1.
- There was a general sense that people were excited about seeing something happening in the area and the general benefits of community growth and increase in home values in the broader area.

Stakeholders were concerned about how the alternatives affected their property specifically and focused on implementation of the plan. Points of discussion included:

- What markets would the new housing and office serve?
- How would SE Otty Road and other road improvements be built, and how would this impact existing businesses?
- How would the new street network be built in Johnson Creek Crossing, and how would this impact the shopping center?
- How would business relocations happen?

County Commissioners supported the new approach to a Comprehensive Plan for the area and restated their support for retaining and constructing affordable housing in the area.

VI. THE RECOMMENDED PLAN

The recommended Land Use and Transportation plan for the Fuller Road Station Area is illustrated in the attached maps, street diagrams and street cross sections. Figure 7 illustrates the Recommended Land Use Plan and also includes a boundary of the proposed "Station Community." Figure 8 illustrates the Recommended TOD Street Network for the Fuller Road Station Area. Figure 9 illustrates Recommended Street Cross Sections. Figure 10 is a diagram of the Core traffic streets.

The elements of the physical environment that are planned are described below, followed by a recommendation for the county Comprehensive Plan and Zoning and Development Ordinance.

A. How the Recommended Plan was developed

This recommended plan is based on the two alternatives, considering the results of the modeled traffic forecasts and impacts of the two alternatives, and the ideas, comments and concerns expressed by the public, stakeholder and agency reviews of the alternatives.

The recommended plan incorporates TOD concepts, integrating urban design, land use planning, transportation planning and traffic engineering to create an intense development pattern around the light rail station that takes advantage of the transit investment. It integrates the existing road network and development pattern in the Fuller Road station community, as well as existing goals and policies of the County's Transportation and Comprehensive Plan that support TOD development. In addition, the types of new development planned for will be appropriate to the local market.

The recommended plan is based on an understanding that existing conditions present obstacles to supporting a future TOD. For example, residential and industrial uses in the area will be impacted as redevelopment occurs around them, the area has many developed smaller lots that will be difficult to consolidate, retail development on SE 82nd Avenue currently is not designed to encourage transit and pedestrian use, and few direct roads or pedestrian links connect to the station. If TOD concepts are to function within the station community, a walkable street grid will have to be constructed and strategic private/public partnerships or funding programs will be needed to encourage and support TOD.

The recommended plan also reflects Clackamas County's commitment to protect existing neighborhoods; especially neighborhoods of affordable housing. A mobile home park located south of the study area was included in one of the alternatives, but not in the recommendation, because of potential impacts on affordable housing.

Likewise, neighborhoods located north of SE Johnson Creek Boulevard were not included in the proposed Station Community.

B. Future Development Pattern

Development within the station community will intensify with a varied palette of land uses. It will become an attractive neighborhood with a mix of uses, residents and jobs within walking distance of the station and a sustainable environment that encourages walking and bicycling.

Land uses will intensity in the entire study area, yet there will be differences between the areas facing SE 82nd Avenue, which currently are committed to large scale retail uses, and the areas immediately around the station, which currently are a mixture of older residential and industrial uses.

Key components of the planned future development pattern include:

- **Corridor Commercial.** The areas around 82nd Ave are expected to increase in intensity as property owners respond to the opportunities created by the station and by changes in the market. The county's code will be revised to require that, when development permits are requested, these areas be master planned to accommodate the street grid that is needed to support TOD in the area. Design elements will also be added to the code to support TOD development patterns.

  New streets and existing interior roads will provide on-street parking to encourage street facing buildings and a lively multimodal street environment. The County's Corridor Commercial zone already allows the uses envisioned in this area, a mix of retail with medium intensity office and residential uses.

- **Station Community Mixed Use.** Future development in the Station Community Mixed Use area, located east of SE Fuller Road, will be considerably different from what currently exists or what the current LTIC zone would allow. The Station Community Mixed Use area is expected to develop with a variety of uses in three- to four-story buildings, including high density housing (up to 60 units per acre), office, institutional uses such as higher education and medical, and retail. Ground floor retail will serve local and neighboring residential areas and offices designed to support a lively pedestrian-oriented streetscape.

  A critical part of the Station Community will be creation of the street grid envisioned in the plan, with on-street parking to support storefront service and retail uses. Other parking would be structured or located to the side or back of buildings. Development will occur on the pedestrian-scaled blocks created by the new street system. Streets will be lined with buildings designed to support an active pedestrian environment.

  "Station Community Mixed Use" will be a new code category to replace the current LTIC zone. The form based code for the Station Community Mixed Use area will be

less prescriptive of uses than Clackamas County's current codes and more prescriptive of building design to ensure that various individual developments are compatible with one another and support the transit oriented district. Form based zoning will regulate building form, placement, and orientation, placing the most emphasis on how the structure relates to the street and surrounding uses.

- **Possible Interchange Impact Area.** The Possible Interchange Impact Area identifies which properties potentially could be affected in the future when the I-205/SE Johnson Creek Boulevard interchange is rebuilt. Currently, the exact footprint of the interchange is unknown. ODOT has not started design work or environmental assessments, or acquired any right-of-way, so new development still could occur on these sites.

C. Urban Design Elements Supporting the Concept

A number of urban design elements are proposed in the plan that are important to support the future development pattern proposed in this plan.

- **Storefront Corridors:** Storefront type development will be encouraged to line streets and roads throughout the station community. Two areas are specifically called out where storefronts facing the street will be required.

  SE Otty Road: New structures along SE Otty Road will be required to front the street and include active uses such as retail or services in traditional storefont building forms with display windows and entrances facing the street. These uses will be supported by shared public on-street parking. Any off-street parking will be located to the side or behind buildings. This storefront corridor will make SE Otty Road an attractive pedestrian connection between the bus stops on SE 82nd Avenue and the light rail station, and serve as a linear gateway into the station for both pedestrians and vehicles.

  SE 82nd Avenue: When new development occurs along SE 82nd Avenue, new structures will be required to include storefronts with active uses such as retail or services that face the new east-west streets (Overland, Clackamas, and Lamphier). Corner buildings at the intersections of these streets and SE 82nd Avenue will be oriented to both streets. Between the east-west streets on SE 82nd Avenue, buildings will be required to have storefront design. Shared public on-street parking to support the storefront uses will be provided in front of the buildings on the new east-west streets, but not on SE 82nd Avenue. Off-street parking will be located to the side or behind buildings.

- **Park-and-Ride Facility**. The TriMet park-and-ride lot initially will be a surface facility. When the area redevelops, however, the parking area should be replaced with a structured facility to support both park-and-ride and surrounding business needs. A structured parking facility also would increase the amount of developable

land within the station community. Ideally, the TriMet park-and-ride structure will be developed as a shared facility with adjoining properties.

- **Plazas and Pocket Parks**. Plazas and a pocket park are shown diagrammatically on Figure 7. As the area develops, the locations of these facilities will be worked out with the development community. Because of concerns about crime, public parks and plazas should be constructed after some development has occurred in the area so there are employees and residents to keep an eye on the facilities.

  As the station community develops, plazas and pocket parks will be important gathering areas for employees and residents to socialize and recreate within the project area. Providing these public amenities is an important component of a TOD plan because it enhances a livable community atmosphere.

- **Gateways.** Key station community identifiers will show drivers and transit riders that they have entered the station community and that this is an area with a special character. Gateway elements can include taller buildings at gateway intersections, architectural elements, lighted street signs or other special street signs, and crosswalks made of special materials.

D. Transportation Systems

1. Street Network

Encouraging a TOD land use pattern will require a denser street network than exists today to provide better connections for pedestrians, bicyclists, and motorists within the station community. Many of these streets also are a critical part of the network needed to move vehicular traffic to and through the station community.

- **Core traffic streets** are needed to move traffic through the study area and also to provide vehicular access to businesses and homes in the station community. These streets were included in the road network used in the traffic analysis and will be critical to providing vehicular traffic capacity. These core streets are part of the TOD street network, but also include the new collector street on SE 79th (adopted in the County Comprehensive Plan) and 92nd Avenue, both located slightly outside of the station community.

- **TOD street network** streets are important to make TOD development successful in the station community, creating a series of pedestrian scaled blocks to create a new form of development in the station community. Cross hatched areas shown on Figure 4 denote where the alignment of future streets will be located by a master planning process with developers, thus providing some flexibility in the specific alignments. Some of the master plan streets may become private streets.

The increased access, on-street parking, and public realm that this denser street grid creates are fundamental elements of a TOD. The proposed street grid system provides for street connections at approximately 400-foot intervals. The type of street

is dependent on how it will be used, whether it is a core traffic street that is designed primarily as a through street, a street that supports the local business and residential areas, or both. The recommended street cross sections are shown in Figure 9 and include:

- **Major Boulevards** (SE 82nd Avenue and SE Johnson Creek Boulevard) are the arterial roadways with the heaviest traffic volumes and do not accommodate on-street parking. They include amenities that will make the streets inviting to pedestrians, including landscaped medians, bicycle lanes, sidewalks and planting strips to separate pedestrians from traffic.

  When specific design work is done for both SE 82nd Avenue and SE Johnson Creek Boulevard, ODOT will require an analysis of lane width and a design exception will be needed to provide the 11' lanes shown in these cross sections. Currently, standards for freight traffic may preclude 11' lanes.

- **Minor Boulevards** (SE Otty Road, portions of SE Fuller Road, some of the master plan streets) are important to traffic movement, but can accommodate on-street parking. They also include a central landscaped median, sidewalks, bike lanes and street trees.

- **Minor Streets** (some of the master plan streets, portions of SE Fuller Road) are similar to boulevards, except they do not include central medians. They include on-street parking, wide sidewalks, bicycle lanes, and street trees.

- **Neighborhood Streets** (SE Clackamas Street, SE Overland Street, and SE Otty Road west of SE 82nd Avenue, SE Glencoe Road, and some master plan streets) generally make connections to SE 82nd Avenue west of the project area and will connect to the new master plan streets. These streets serve local needs and provide local access but carry low volumes of vehicular traffic compared to other street sections. Neighborhood streets include on-street parking, wide sidewalks and street trees. Because of the low traffic volumes, bicyclists share travel lanes with vehicles.

- **Multi-use Trail**. The regional multi-use trail along I-205 will be improved to include a 10-foot bicycle area and 5-foot pedestrian path. Landscaping would be enhanced and lighting and other safety improvements added. The multi-use trail becomes a pedestrian spine for the Station Community Mixed Use area.

Streets located outside the designated station community, such as SE 79th Street, will be improved following county standards that are provided in the existing Transportation System Plan. However, it is important that these streets continue some of the design elements of the streets in the station community to improve pedestrian connections between the areas located more than ¼ mile walk from the station and the station community. The most important street design elements are on-street parking and planting strips.

2. Master Plan Streets

The TOD Streets Network map (Figure 8) includes a category of "master plan streets." There will be flexibility in the actual location of these future streets, with final alignment determined through a master plan process. A "street placement zone" indicated on Figure 8 shows the general areas in which the street should be located.

Most of the master plan streets are located in areas that are currently privately owned and are often developed. On these sites, owners will need flexibility to plan and stage the development of streets, while maintaining the viability of current uses. A portion of SE Fuller Road, an existing public street, is also shown as a master plan street; this is intended to provide the flexibility to relocate Fuller Road at some future time to line up to the new crossing of SE Johnson Creek Boulevard.

3. Potential Future Traffic Signals on SE 82nd Avenue and SE Johnson Creek Boulevard / Pedestrian Crossings

The Recommended TOD Street Network map (Figure 8) includes several potential future signals on SE 82nd Avenue and SE Johnson Creek Boulevard. These signals are located where current standards would neither warrant signals nor allow them, even though they are recommended to provide safe pedestrian crossings at frequent enough intervals to support TOD. Ideally, pedestrian crossings on large streets carrying heavy traffic should be provided at signalized intersections at intervals of approximately 400 feet.

Three potential future signals are identified on the TOD street network with the expectation that signals will be installed in these locations if state and county standards are changed at some future time to prioritize pedestrian circulation in this area. When specific designs are developed for SE 82nd Avenue and SE Johnson Creek Boulevard, the addition of signals at these intersections should be studied. If signals cannot be provided, these intersections are intended to be locations for unsignalized, marked pedestrian crossings or unmarked pedestrian crossings with refuge areas.

Unsignalized pedestrian crossings are not a good substitute for signals in these locations, because of concerns about pedestrian safety when crossing multiple lanes of traffic going the same direction. Pedestrians may perceive that they have a safe route to cross, when in reality some drivers on these crowded, higher speed streets may not be able to see them.

Unresolved concerns about pedestrian and bicycle connectivity addressed by potential future signal locations include:

- **SE Johnson Creek Boulevard** is a pedestrian barrier because of its width (five lanes plus turn lanes) and the infrequency of signalized crossings. The *Oregon*

Highway Plan standards prohibit signals and full street connections within 1,320 feet of an interchange to limit the length of vehicular queues on freeway ramps. Thus, additional signalized intersections along SE Johnson Creek Boulevard are not permitted. Pedestrian and bicycle crossings will be located at the SE Johnson Creek Boulevard/SE 82nd Avenue intersection, at an un-signalized pedestrian crossing approximately 600 feet to the east of the southbound ramps, and adjacent to I-205 at the multi-use trail underpass.

The existing, signalized pedestrian crossing at SE Fuller Road is not in the recommended plan, because ODOT intends to eliminate this crossing within the next five years to resolve safety and queuing problems on the I-205 ramps. Additionally, the interchange will be redesigned in the future, at which time pedestrian and bicycle access through the interchange area will be evaluated.

Ideally, future ODOT regulations will allow the new planned crossing to be signalized. If no crossing is allowed, there would be more than 1,300 feet without a pedestrian crossing between the multi-use trail and the SE 82nd Avenue signal.

- **SE 82nd Avenue** is a pedestrian barrier because of its width and infrequent signalized crossings; signal frequency on this state highway is limited by ODOT signal spacing standards. On SE 82nd Avenue, the recommended plan provides crossings at signalized intersections with SE Johnson Creek Boulevard, SE Overland Street, SE Otty Road and SE Glencoe Road. The potential future signal locations are at SE Clackamas Street and SE Lamphier Street. An alternative signal arrangement that might make this area more accessible for pedestrians could be to signalize SE Clackamas and Lamphier streets, while removing the signal at SE Overland Street.

  If neither additional signals nor unsignalized crossings are allowed, the distances without a pedestrian crossing would be more than 800 feet, or more than three city of Portland blocks.

4. Bus Transit Connections

In addition to the light rail station, TriMet routes #72 (along SE 82nd Avenue) and #31 (at SE King Road and SE 82nd Avenue) will continue to serve the station community. No additional bus transit connections will be provided at the Fuller Road station by TriMet because bus connections to the light rail line will be made at the Clackamas Town Center station. However, since there will still be some need for transfers from buses to light rail at the Fuller Road station, the TOD street network will be important to facilitate pedestrian movement between bus stops on SE 82nd Avenue (at SE Otty and SE Overland) to the station.

5. Road Capacity Improvements

As previously described, the traffic analysis found that four intersections in the no-build alternative would be below acceptable jurisdictional standards (SE 82nd/SE Johnson Creek Boulevard, SE 82nd/SE Otty Road, SE 92nd/SE Johnson Creek Boulevard, and SE 92nd/SE Otty Road). The analysis also found that traffic from either alternative would not have a significant effect on (worsen) the projected deficiencies at the SE 82nd Avenue intersections or at SE 92nd/ SE Otty Road.

A sensitivity analysis was conducted of the recommended plan (see Appendix E) that demonstrated that the land uses and transportation network in the recommended plan would degrade traffic operations beyond those anticipated under the existing plan only at one intersection, SE 92nd Avenue/SE Johnson Creek Boulevard. This analysis assumed that the road network already identified in the county's current Transportation System Plan (TSP), shown in the Core Street network, would be built.

The following projects will be needed to support the recommended plan, in addition to those already identified in the county TSP:

- **SE 92nd Avenue/SE Johnson Creek Boulevard**: Add a northbound-to-westbound left turn lane and provide 200 feet of vehicle storage for both the new and existing northbound left turn lanes at the intersection. This project will mitigate the significant effects identified in the traffic analysis.
- **SE 82nd/SE Johnson Creek Boulevard**. Future operations at this intersection are beyond acceptable jurisdiction levels under both the no-build and the recommended plan. The recommended plan did not show a significant effect at this location. However, background growth in traffic levels would require an improvement at this intersection that has not yet been identified in the current Transportation System Plan. When the County's TSP/20-year CIP is updated in the future, it should identify appropriate improvements at this intersection to meet jurisdictional operating standards. Specific movements of concern that are forecasted to be over jurisdictional standard include: Eastbound through, westbound lefts, northbound lefts and southbound through.
- **SE 82nd/SE Otty Road**. Future operations at this intersection are beyond acceptable jurisdiction levels under both the no-build and the recommended plan. The recommended plan did not show a significant effect at this location. However, background growth in traffic levels would require an improvement at this intersection that has not yet been identified in the current Transportation System Plan. When the County's TSP/20-year CIP is updated in the future, it should identify appropriate improvements at this intersection to meet jurisdictional operating standards. Specific movements of concern that are

forecasted to be over jurisdictional standard include: Westbound left, northbound through/right and southbound left.

- **SE 92nd/SE Otty Road**. Future operations at this intersection are beyond acceptable jurisdiction levels under both the no-build and the recommended plan. The recommended plan did not show a significant effect at this location. However, background growth in traffic levels would require an improvement at this intersection that has not yet been identified in the current Transportation System Plan. When the County's TSP/20-year CIP is updated in the future, it should identify appropriate improvements at this intersection to meet jurisdictional operating standards. Specific movements of concern that are forecasted to be over jurisdictional standard include: Eastbound left and through, westbound left, northbound left and southbound left.

6. Mobility Standards

The recommended plan calls for a relaxation in the jurisdictional mobility standards (County level-of-service and ODOT volume-to-capacity), consistent with Metro RTP and Oregon Highway Plan standards for Metro Station Communities.

In forecasting the "trip generation" for proposed land uses, several factors were applied that helped reduce the forecasted number of trips generated by mixed-use development. The trip reduction factors included an estimated percentage of trips diverted to transit use, an estimated percentage of trips that are "pass-by" trips (those already on the road network), and an estimated percentage of trips internal to the station community (the trips begin and end within the station community). The traffic forecast found that the number of PM peak hour trips in year 2030 for the recommended plan would be less than the number of trips forecasted for the no-build scenario.

However, the trip reduction benefits of the multimodal system will not be realized immediately. This could create difficulties for early developments in meeting the county's transportation concurrency requirements, which measure the effects of each development against mobility standards. Therefore, the recommended plan calls for relaxation of mobility standards in the station community to support the normal staging of development.

The recommended standards are the same as are already found in the Clackamas Regional Center Area Design Plan for the portion of SE 82nd Avenue in the Regional Center, and are consistent with standards already allowed for Station Communities by Metro and ODOT. The recommended standards are:

- **County standards for SE 82nd Avenue and SE Johnson Creek Boulevard** in the Station Community:

  Congestion Performance Standards (Level-of-Service)

	Preferred Operation Standard	Acceptable Operation Standard	Exceeds Deficiency Threshold
Mid-day one hour	C or better	E	F or worse
Peak two-hour	E first hour E second hour	F first hour E second hour	F first hour F second hour

- **ODOT standards for SE 82nd Avenue** in the Station Community: Oregon Highway Plan standards for Station Communities are:
  - First PM peak hour: 1.1 volume-to-capacity ratio
  - Second PM peak hour: .99 volume-to-capacity ratio

7. Parking

Parking will be an important aspect of future development in the station community because residents, employees at local businesses, and retail customers will need to park vehicles. Parking will be convenient and attractive, but not create physical or visual barriers to pedestrians or negatively affect the street system. Shared, public, on-street parking is an important to support street-facing retail uses. On-street parking will be provided on all streets except SE 82nd Avenue and SE Johnson Creek Boulevard.

Surface parking lots will be located to the side or behind the buildings. Structured parking, which will be needed as development intensifies, will be located to the side or behind buildings, or include active uses such as retail on the ground floor. Some uses could share parking, including the TriMet park-and-ride lot, which eventually should be redeveloped into a three- to four-story structure similar to the height of surrounding buildings.

8. On-street Parking on SE 82nd Avenue

This plan does not assume that on-street parking will be provided on SE 82nd Avenue in the short term and does not suggest that it be required in the Comprehensive Plan or ZDO. Ideally, on-street parking would be provided on virtually all public and private streets (possibly including SE 82nd Avenue in the future, but never expected on SE Johnson Creek Boulevard), supporting retail and other active, first-floor uses oriented to the street.

Therefore, even though SE 82nd Avenue will not have on-street parking in the short-term, a cross-section for SE 82nd Avenue with on-street parking has been prepared and included in this report. It represents an aspiration for a time when Clackamas County and ODOT determine that conditions or priorities in the area have changed, making on-street parking supportable. The draft Comprehensive Plan amendments

call for a study of on-street parking on SE 82nd Avenue if future conditions warrant it.

9. Pedestrian and Bicycle Access

Pedestrian and bicycle facilities are critical to TOD. The recommended TOD street network provides for pedestrian and bicycle access on surface streets that are spaced at approximately 400-foot intervals. Bicycle lanes will be provided on many streets. Pedestrian crossings of heavily traveled streets are generally provided at signals. The ODOT multi-use trail will be a pedestrian spine in the Station Community Mixed Use area, with frequent connections to streets and new developments. The multi-use trail also will provide excellent access to bicycle commuters. Figure 9 shows the recommended cross section for the multi-use trail.

E. Public Facilities and Services

Public facilities, including sanitary sewer, public water, storm drainage and parks, are all provided in the Fuller Road station community by public service districts, Representatives from these districts participated in development of the plan and had no concerns about the ability to provide public facilities to the land uses proposed by the plan. As the land uses become more intense, some facilities may need to be upgraded. Police and Fire service providers also were involved in the TAC and expressed few concerns about providing services to the planned future land uses.

F. Development potential under the Recommended Plan

Estimates of the level of development that will occur under the recommended plan are shown in the table below.

Table 4 Development Potential under the Recommended Plan

Site Area (Gross Acres)	Site Area (Net Buildable Acres)	Development Potential: Retail ft2	Development Potential: Office/ Institutional ft2	Development Potential: Dwelling Units
78	47	511,350	630,600	528

G. Proposed Changes to the Comprehensive Plan: Clackamas Regional Center Area Plan

Implementing the recommended plan for the Fuller Road station community will require amending the Clackamas Regional Center Area Design Plan to include a new Station Community designation and modifications to the existing Corridor Commercial land use designation within the Fuller Road Station Community.

The Clackamas County Comprehensive Plan is the policy document on which the county's Zoning and Development Ordinance is based. Chapter 10 of the

Comprehensive Plan, the "Design Plan" chapter, contains several specific area plans, including one for the Clackamas Regional Center Area (CRCA). The Fuller Road Station Area currently is part of the CRCA design plan. Revisions to the Clackamas Regional Center Area (CRCA) Design Plan will be the primary means to implement the Station Area Plan.

Following is a summary of proposed changes to the CRCA Plan. Proposed amendments to the design plan are included in Appendix C of this report.

- **Create a Station Community Design type and policies to implement it**. The CRCA Design Plan is essentially designed around implementing the provisions of Metro's Region 2040 Plan design types, so the proposal would continue that by providing for a "Station Community" in the Design Plan. The proposed boundaries of the station community are shown on Figure 7. All of the following would be applied within the station community:
    - **Modify the Corridor Commercial** plan designation to require master planning and development of the TOD street network, as well as new development oriented towards streets and parking lots located to the side and behind buildings. TOD streets will be developed with on-street parking. Form based code elements/design standards for buildings will be added to the Corridor Commercial zoning ordinance.
    - **Create a new Station Community Mixed Use** plan designation to accommodate a mix of residential, office, service and service commercial uses within buildings and developments that meet Transit Oriented Development Standards. Again, development will be oriented to the TOD street network, which will have on-street parking and other amenities to support building orientation to the street. A new form based code will be written to implement this plan designation.
    - **Relax Congestion Performance Standards for this segment of SE 82nd Avenue** to match the standards in the Regional Center. Because station communities are considered "centers" by Metro, the reduction in standards is allowed. Designation of SE 82nd Avenue as a "boulevard" in the station community will also support this change in standards.
    - **Include a policy to locate parking lots** to the side and behind buildings.
    - **Include a policy to require on-street parking** on all streets on the TOD street network except SE 82nd Avenue and SE Johnson Creek Boulevard.
    - **Include a policy that indicates that on-street parking should be considered on SE 82nd Avenge in the future.**
- **Delete the Low Traffic Impact Commercial plan designation**. This plan designation was designed to meet special needs that had been identified only in the

Fuller Road station location. Because these needs no longer apply, the LTIC plan designation should be deleted from the Comprehensive Plan.

- **Include maps and cross sections for streets.** Include the maps and cross sections for streets and roads. Add the following to the Design Plan:
  - The Transit Oriented Development (TOD) Street Network
  - Street cross sections
  - Core Traffic Streets, and improvements to be included in the County's Capital Improvement Plan.
- **Include a policy to encourage Tri-Met to structure the Park and Ride lot**.

H. Proposed Changes to the Comprehensive Plan: Transportation System Plan

Design Plans supersede other policy provisions of the Comprehensive Plan, but for coordination purposes, the Transportation Chapter of the Comprehensive Plan should also be updated. Chapter 5 of the county's Comprehensive Plan includes the Transportation System Plan (TSP) and the 20-year Capital Improvement Plan (CIP). All transportation facilities shown on Figures 8, 9 and 10, if not already included in the TSP, should be included.

Changes recommended to the TSP include:

- **SE Overland Street extension**, a new collector level street, should be added to the county's TSP.
- **SE Johnson Creek Boulevard** street enhancement consistent with the cross section shown in Figure 9 (Major Boulevard).
- **SE 82nd Avenue** street enhancement consistent with the cross section shown in Figure 9 (Major Boulevard).
- **SE Otty Road** street enhancement consistent with the cross section shown in Figure 9 (Minor Boulevard).
- **I-205 Multi-use trail** enhancement consistent with the cross section shown in Figure 9.
- **SE 92nd Avenue at SE Johnson Creek Boulevard**: Add a northbound to westbound left turn lane; provide 200 feet of vehicle storage for both the new and existing northbound left turn lanes at the intersection.
- **SE 82nd/SE Johnson Creek Boulevard**. Specific improvement design to be determined.
- **SE 82nd/SE Otty Road**. Specific improvement design to be determined.
- **SE 92nd/SE Otty Road.** Specific improvement design to be determined.

The state's Transportation Planning Rule (TPR), OAR 660-12-060 *Plan and Land Use Regulation Amendments* requires that proposed changes to local comprehensive plans and zoning be evaluated for potential impacts to the transportation system. If the evaluation shows that proposed changes would have a "significant effect[3]" on existing or planned transportation facilities, then the local jurisdiction must plan for specific remedies to alleviate the identified problem.

The transportation analysis for the Fuller Road Station Area Plan compared the future traffic impacts of two build alternatives to the future traffic impacts of a no-build alternative (a forecast of development with the current plan/zones in place).

- The Recommend Plan is a composite of the two build alternatives. A traffic analysis of the Recommended land use plan indicates that a significant effect (degradation of anticipated no-build conditions) would only occur at the intersection of SE 92nd-Johnson Creek Blvd. A mitigation project for this intersection will be added to the Comprehensive Plan, Chapter 5-Transportation (TSP) to address this significant effect.
- The no-build alternative analysis anticipates mobility problems at SE 92nd-Johnson Creek, and also at three additional intersections: SE 82nd/SE Otty, SE 82nd/Johnson Creek, and SE 92nd/SE Otty. As a functioning transportation system will be critical to the success of the Fuller Road Station Community, improvement projects for these three intersections will also be added to the County Comprehensive Plan, Chapter 5 (TSP) to address anticipated deficiencies from background traffic growth.

I. Proposed Changes to the Zoning and Development Ordinance

Implementing the recommended plan for the Fuller Road station community will require amending the Clackamas County Zoning and Development Ordinance (ZDO) to include a new Station Community Mixed Use designation and modifications to the existing Corridor Commercial land use designation within the Fuller Road Station Community. The Fuller Road Station Area Plan recommends that the county develop "form based code" to implement the plan rather than develop/revise ZDO sections based on the County's current zoning code model

The Fuller Road Station Community is geographically located within the Clackamas Regional Center Area (CRCA) Design Plan's area of application. This plan, adopted in 1998, was one of the first plans in the region developed to plan and zone for Metro's then trend-setting "Region 2040 Design Plan" high intensity design type areas. Several provisions were added to support TOD in the ZDO sections developed for that plan. However, in completing the Fuller Road Station Area Plan, the planning team determined that none of the sections of the zoning ordinance developed for the CRCA

[3] "*Significant effect*" is a term used in determining compliance with Oregon TPR requirements. These requirements identify a *significant effect* when the change being proposed degrades conditions below the level of compliance to state and local standards that they would be under the no-build alternative or existing plan.

plan would be appropriate for the immediate station community, and a new type of code was needed. The Fuller Road Station Area Planning team determined that a form based code will be more effective in encouraging redevelopment and transit oriented design.

Form based codes are the current standard for TOD areas, because they emphasize the physical form of the built environment, with the goal to develop a specific type of "place." These codes focus on the visual aspects of development such as building height and bulk, façade treatments, the location of parking, and the relationship of the buildings to the street and to one another, stressing the appearance of the streetscape, or public realm. They include graphics and photos instead of just text to explain the details of zoning requirements. The codes are prescriptive (stating what you want), rather than proscriptive (stating what you don't want), in order to achieve a more predictable physical result.

The expectation is that development potential for properties will increase with the proposed zoning amendments. All existing buildings and businesses will operate as they are under the new form-based code, with customary regulations to limit only expansion or redevelopment of non-conforming uses or buildings.

New ZDO language or changes that will be needed to implement the Fuller Road Station Area Plan will include changes to sections 1007 (Roads, Circulation and Parking) and 1704 (Corridor Commercial), creation of a new section for Station Community Mixed Use, and possibly changes to other sections to be determined. The form based code will be specific to the Fuller Road Station Community within the Clackamas Regional Center Design Plan area.

The amendment package will be taken through a review process with the Planning Commission and the Board of County Commissioners in preparation for adopting the amendments through a public hearings process. Prior to public hearings there will be opportunity for public review and comment.

J. Changes to Metro's Region 2040 Map

Implementing the recommended plan will require two changes to Metro's Region 2040 map:

- **Designate a Station Community**. The specific boundaries of the Fuller Road Station Community should be applied to Metro's map. This will identify for the region the area in which Clackamas County plans to focus station-related development and implementation efforts. Designation will provide recognition of the plans for the area, and may provide better access to implementation programs available through the region or state.
- **Designate SE 82nd Avenue a "boulevard" inside the Station Community.** Designate SE 82nd Avenue a "boulevard" in the Metro RTP Street Design map

consistent with the design features of a Major Boulevard as shown in the recommend plan.

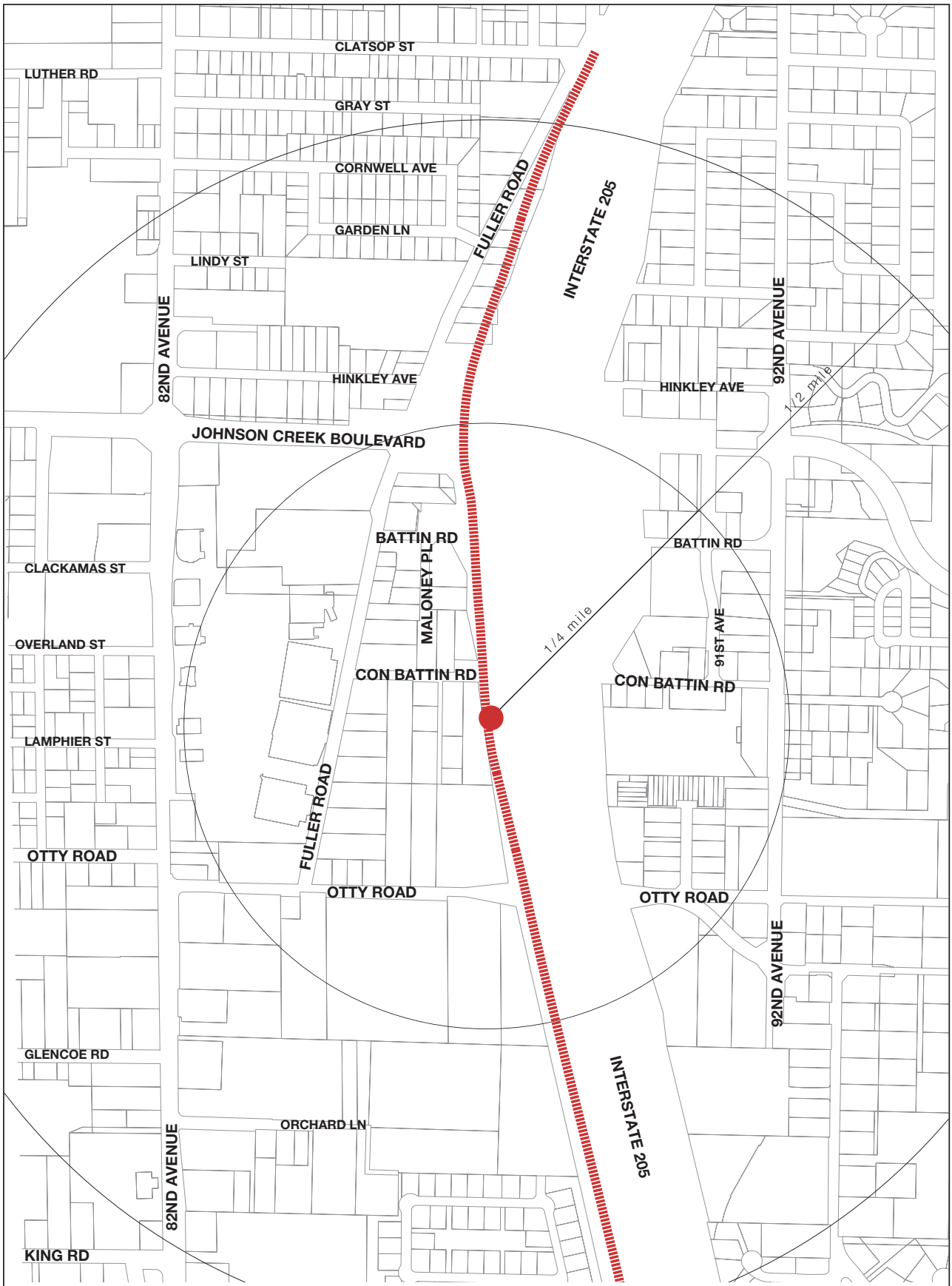


FIGURE 1 STUDY AREA

LRT Alignment

Transit Station/Stop

FIGURE 2 AERIAL PHOTO

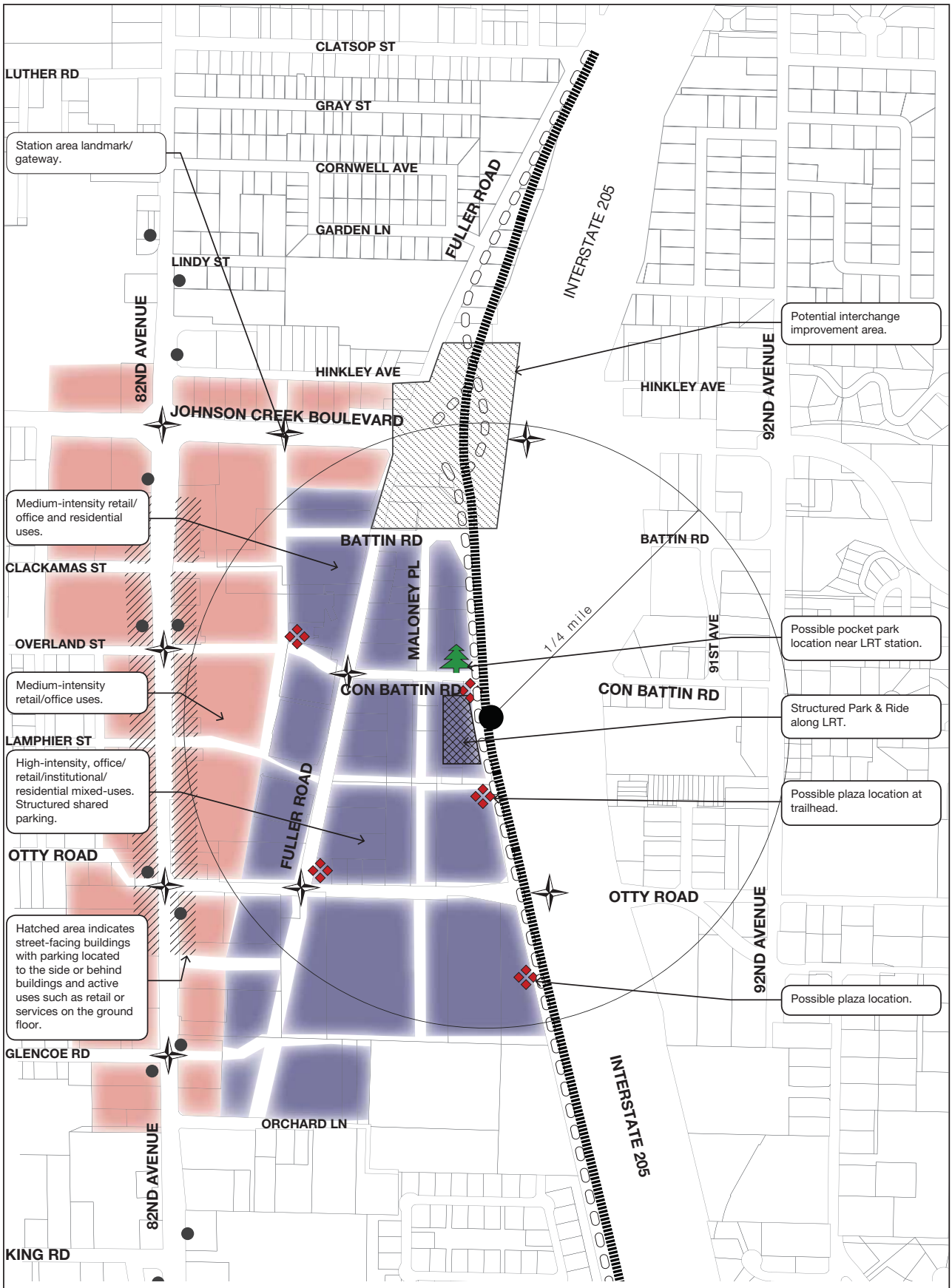


FIGURE 3 LAND USE ALTERNATIVE 1 "82ND AVENUE NODE"

LRT Alignment
Transit Station/Stop
Multi-use Trail
Plaza/Urban Park
Local Park
Landmark/Gateway
Commercial
Institutional/Office/Commercial/ Residential
Possible Interchange Impact Area

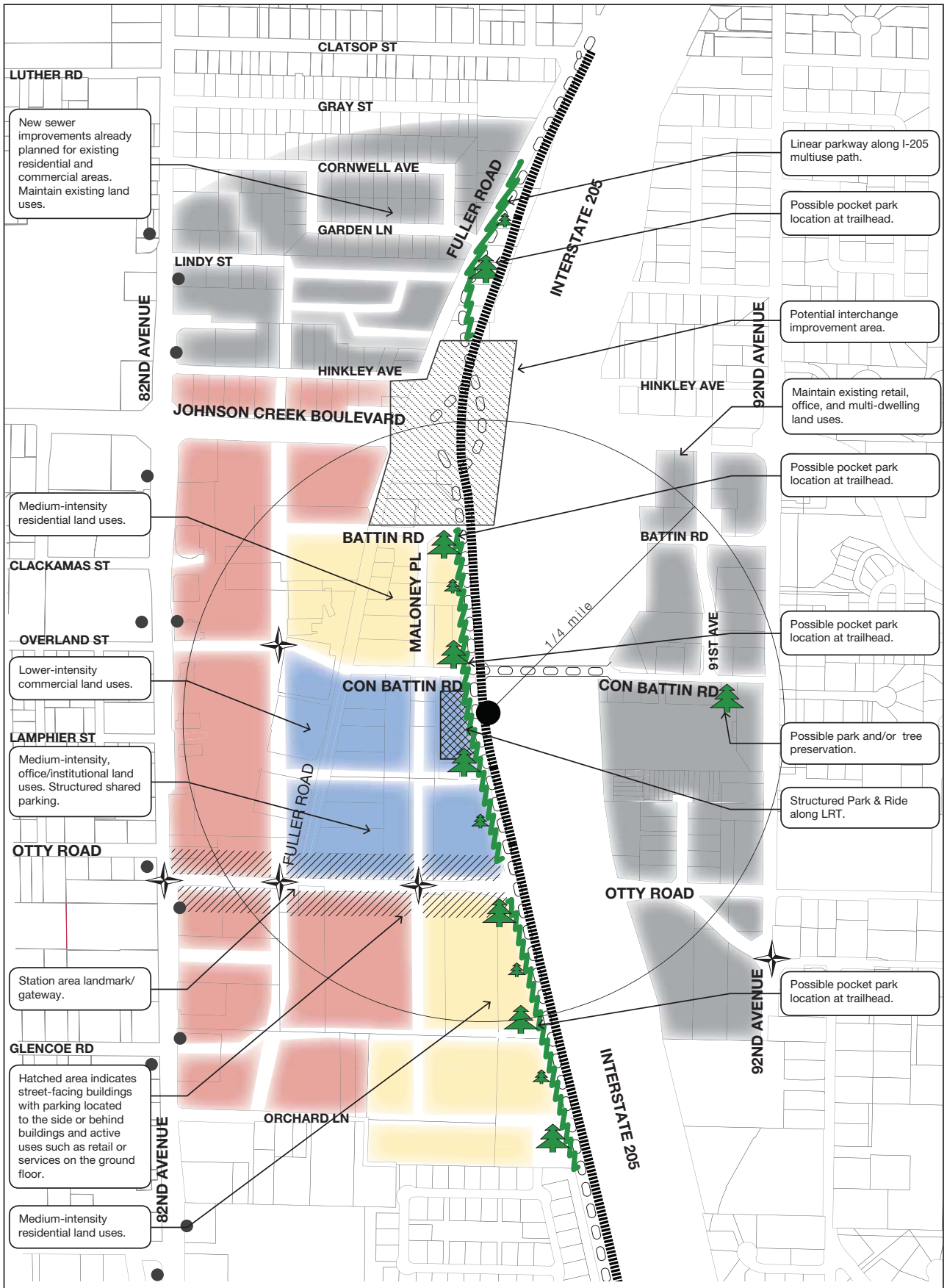


FIGURE 4 LAND USE ALTERNATIVE 2 "LOWER MOUNT SCOTT DISTRICT"

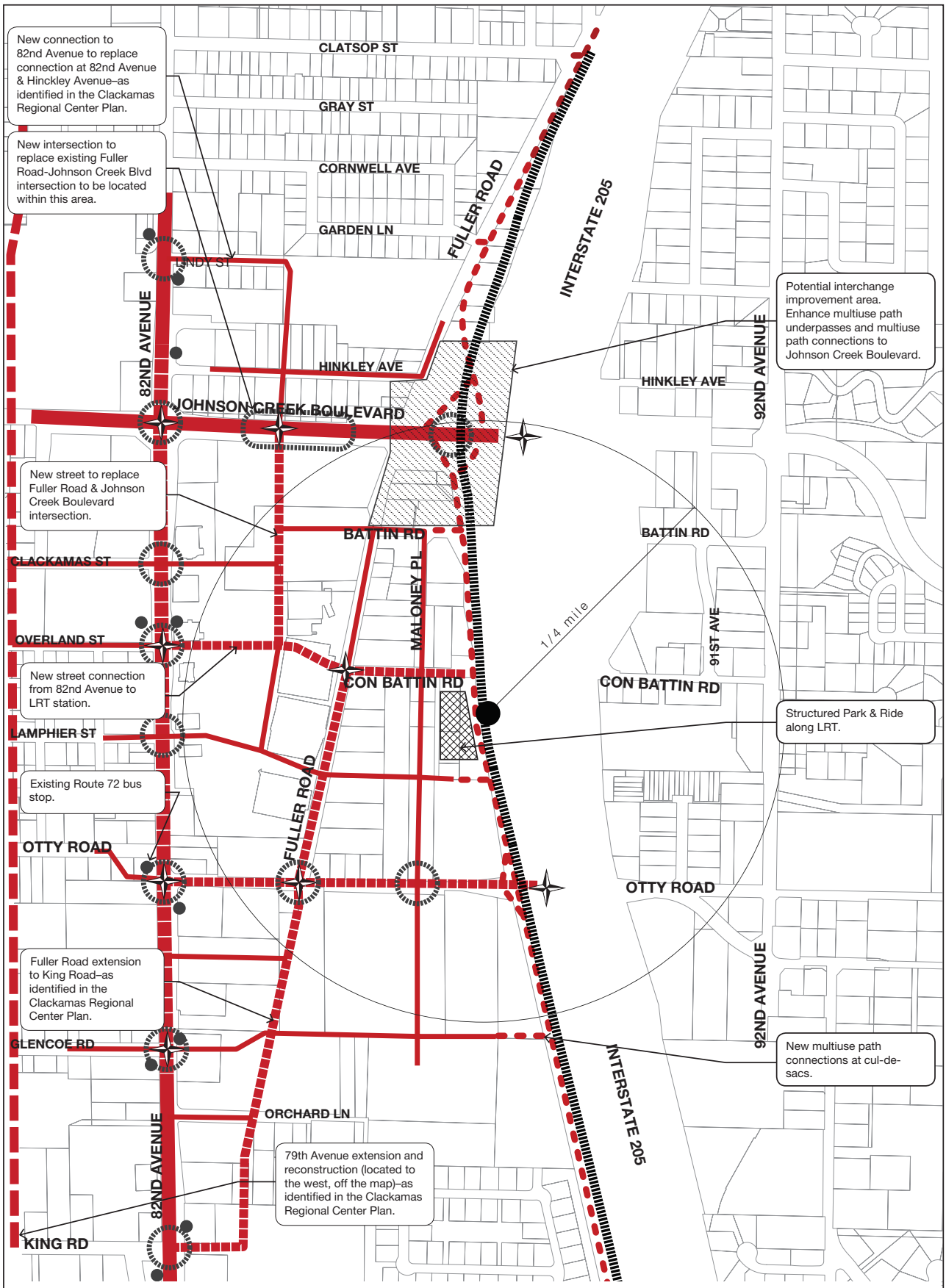


FIGURE 5 TOD CONCEPTS TRANSPORTATION ALTERNATIVE 1 "82ND AVENUE NODE"

LRT Alignment
Transit Station/Stop
Traffic Signalized Intersection
Major Street
Major Boulevard
Neighborhood Street
Minor Street
Minor Boulevard
Multi-use Path
Landmark/Gateway
Possible Interchange Impact Area

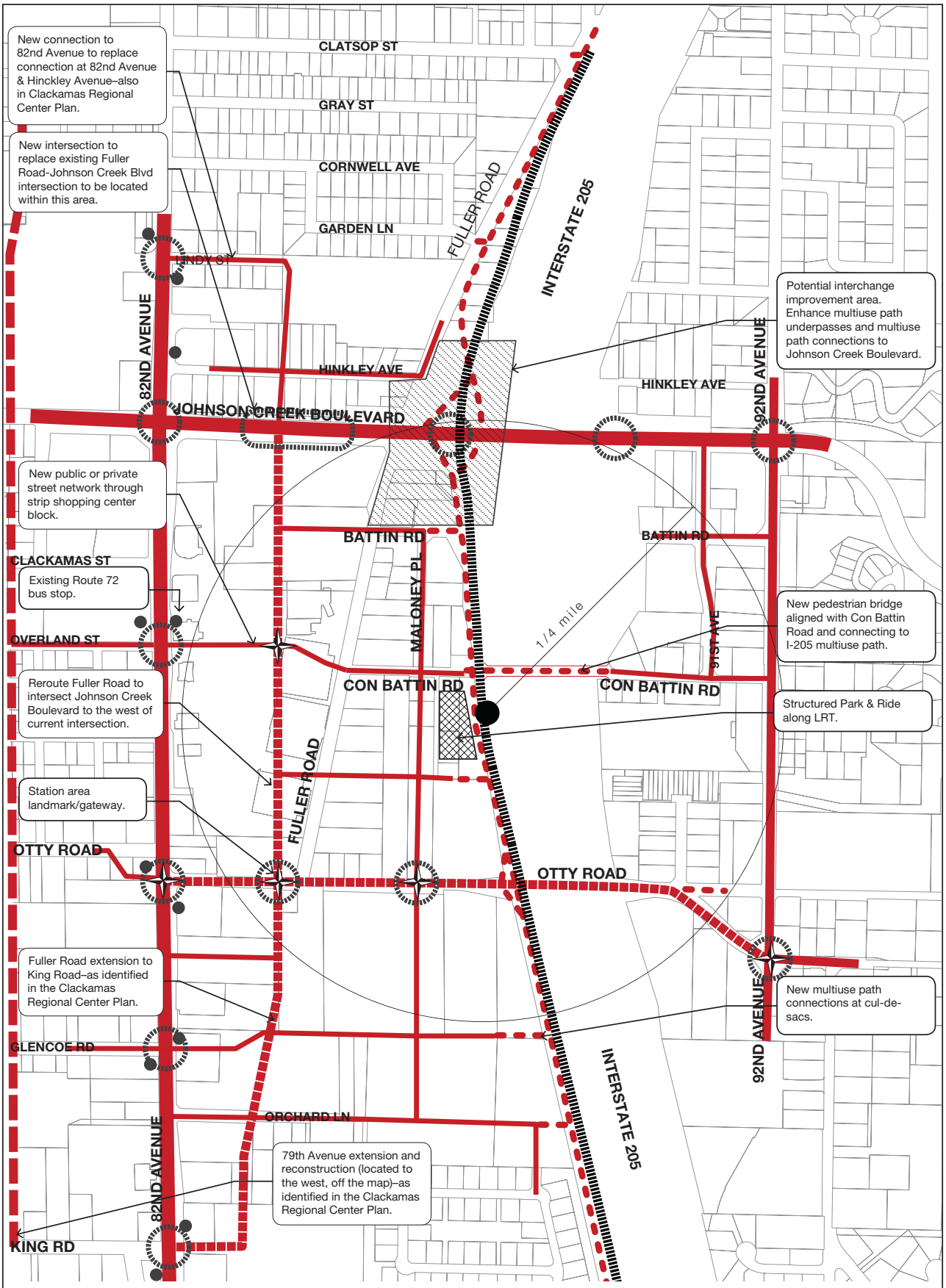


FIGURE 6 TOD CONCEPTS TRANSPORTATION ALTERNATIVE 2 "LOWER MT. SCOTT DISTRICT"

LRT Alignment
Transit Station/Stop
Traffic Signalized Intersection
Major Street
Major Boulevard
Neighborhood Street
Minor Street
Minor Boulevard
Multi-use Path
Landmark/Gateway
Possible Interchange Impact Area

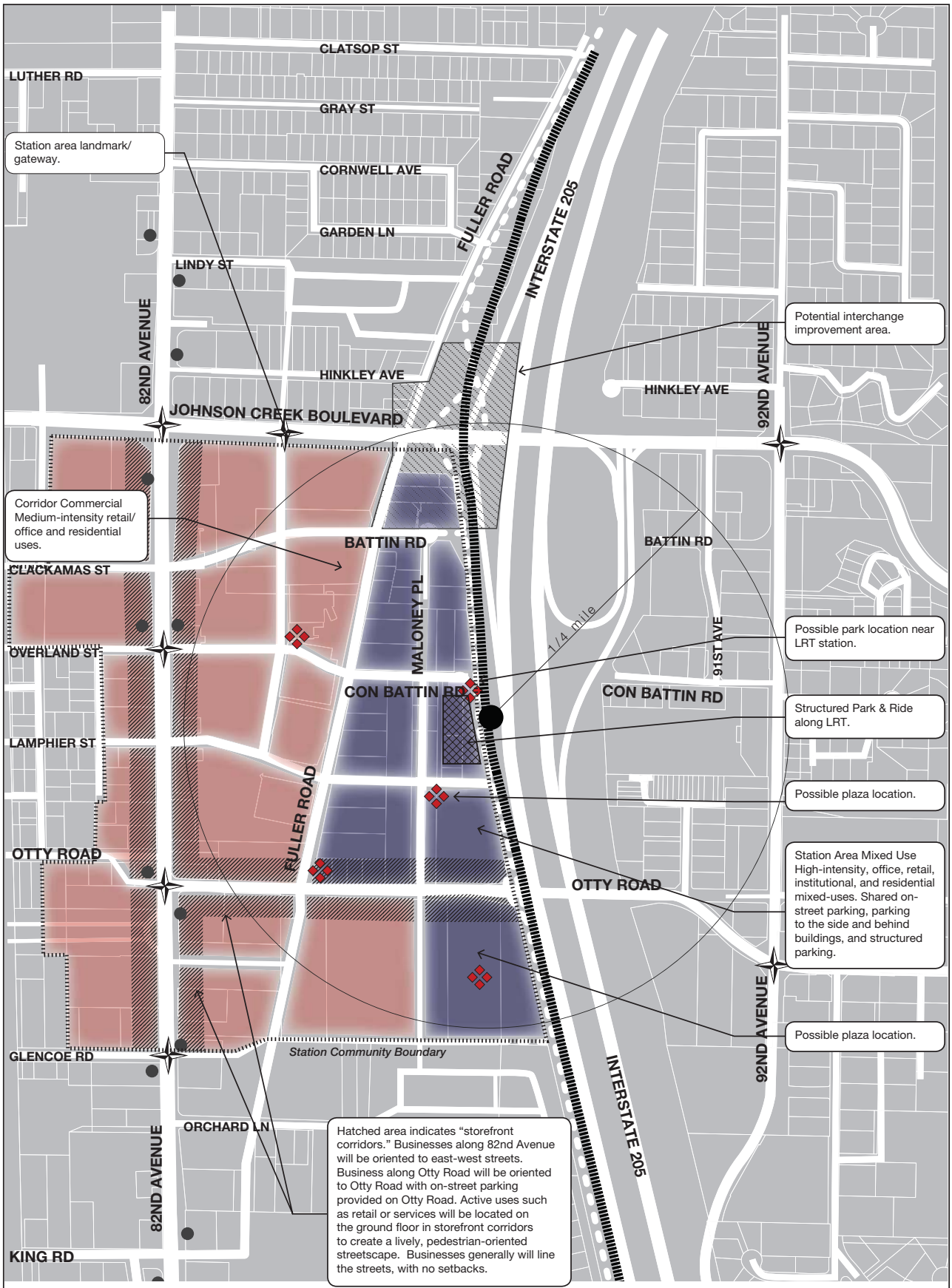


FIGURE 7 RECOMMENDED LAND USES

- LRT Alignment
- Transit Station/Stop
- Multi-use Path
- Pocket Park/Plaza
- Landmark/Gateway
- Corridor Commercial
- Station Area Mixed Use
- Possible Interchange Impact Area
- Storefront Area
- Station Community Boundary

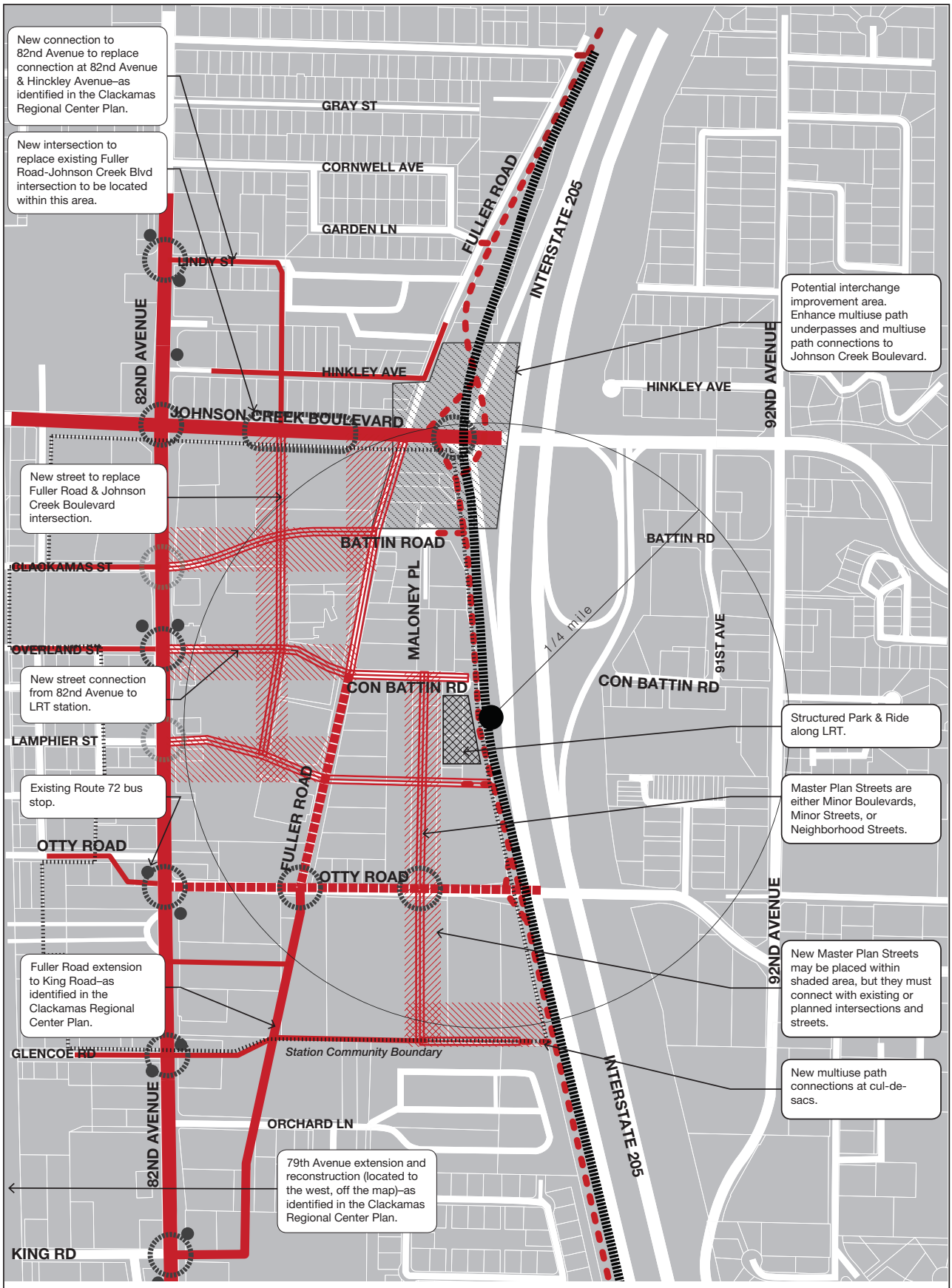


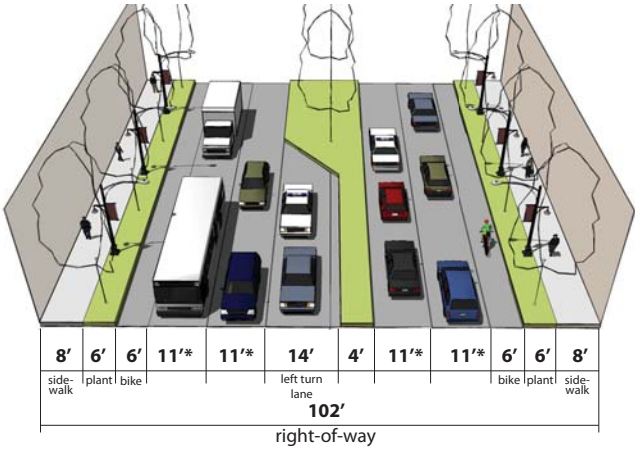
FIGURE 8 RECOMMENDED TOD STREET NETWORK

LRT Alignment
Transit Station/Stop
Traffic Signalized Intersection
Major Boulevard
Master Plan Street
Street Placement Zone
Minor Street
Minor Boulevard
Neighborhood Street
Multi-use Path
Potential Future Traffic Signals/Pedestrian Crossings

MAJOR BOULEVARD

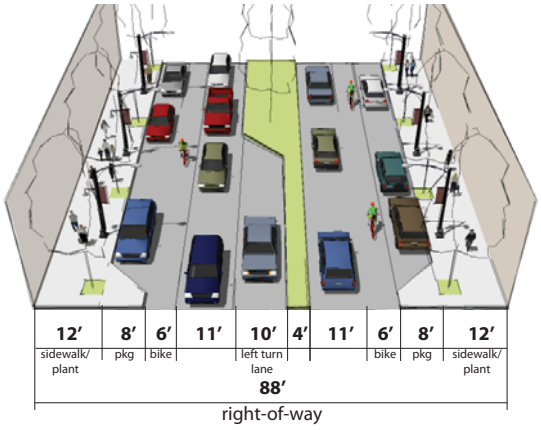
- A regional street carrying high volumes of vehicular traffic.
- Provide an improved pedestrian environment with 8 foot wide sidewalks and 4 foot wide planting strips to buffer pedestrians from traffic.
- Provide improved street and pedestrian-scaled lighting to improve safety and attractiveness.
- Provide bicycle lanes between the plant strip/sidewalk and travel lanes.
- Provide a pedestrian refuge/landscaped median in the middle of the street.

✱ODOT design exception approval required for 11 foot travel lanes on 82nd Avenue. Highway cross-sections are conceptual; ODOT approval required prior to construction.



MINOR BOULEVARD

- A local street carrying moderate volumes of vehicular traffic.
- Provide an improved pedestrian environment with 8 foot wide sidewalks and 4 foot wide planting strips to buffer pedestrians from traffic.
- Provide improved street and pedestrian-scaled lighting to improve safety and attractiveness.
- Provide a parking lane on either side of the street to support retail, office, and residential developments.
- Provide bicycle lanes between the parking and travel lanes.
- Provide a landscaped median/left turn lane in the middle of the street.



MINOR STREET

- A local street carrying moderate volumes of vehicular traffic.
- Provide an improved pedestrian environment with 8 foot wide sidewalks and 4 foot wide planting strips to buffer pedestrians from traffic.
- Provide improved street and pedestrian-scaled lighting to improve safety and attractiveness.
- Provide a parking lane on either side of the street to support retail, office, and residential developments.
- Provide bicycle lanes between the parking and travel lanes.

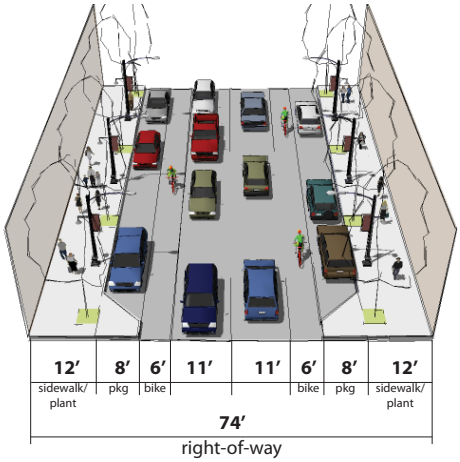
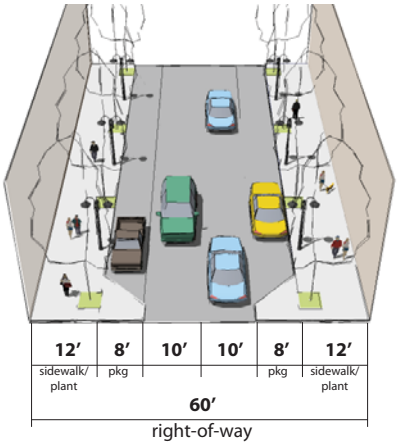


FIGURE 9 RECOMMENDED STREET CROSS SECTIONS

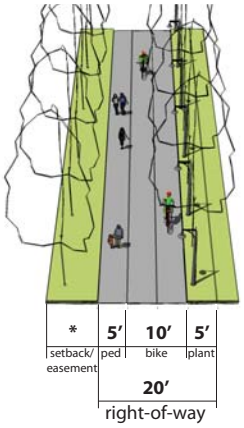
NEIGHBORHOOD STREET

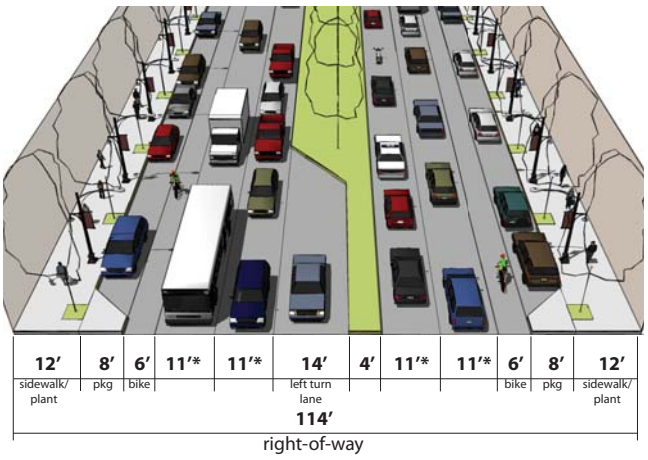
- A local street carrying low volumes of vehicular traffic.
- Provide an improved pedestrian environment with 8 foot wide sidewalks and 4 foot wide planting strips to buffer pedestrians from traffic.
- Provide improved street lighting to improve safety and attractiveness.
- Provide a parking lane on either side of the street to support retail, office, and residential developments.
- Streets may be either public or private.



I-205 MULTIUSE PATH

- A regional recreational path connecting neighborhoods to the north, south, and west along I-205.
- Provide a wider trail with room for two 5-foot bicycle lanes and a 5-foot pedestrian lane.
- Provide improved landscaping and add pedestrian-scaled lighting to improve safety and attractiveness.
- Build improved connections to street system and neighborhoods.
- *Setback or easement for landscaping, to be determined as part of revised land use code.





82ND AVENUE ASPIRATIONAL DESIGN

★To be considered if county and ODOT determine that on-street parking should be provided. ODOT design exception approval required for 11 foot travel lanes and on-street parking. Highway cross-sections are conceptual; ODOT approval required prior to construction.

- A regional street carrying high volumes of vehicular traffic.
- Provide an improved pedestrian environment with 8 foot wide sidewalks and 4 foot wide planting strips to buffer pedestrians from traffic.
- Provide improved street and pedestrian-scaled lighting to improve safety and attractiveness.
- Provide a parking lane on either side of the street to support retail, office, and residential developments.
- Provide bicycle lanes between the parking and travel lanes.
- Provide a pedestrian refuge/landscaped median in the middle of the street.

FIGURE 9 CONTINUED

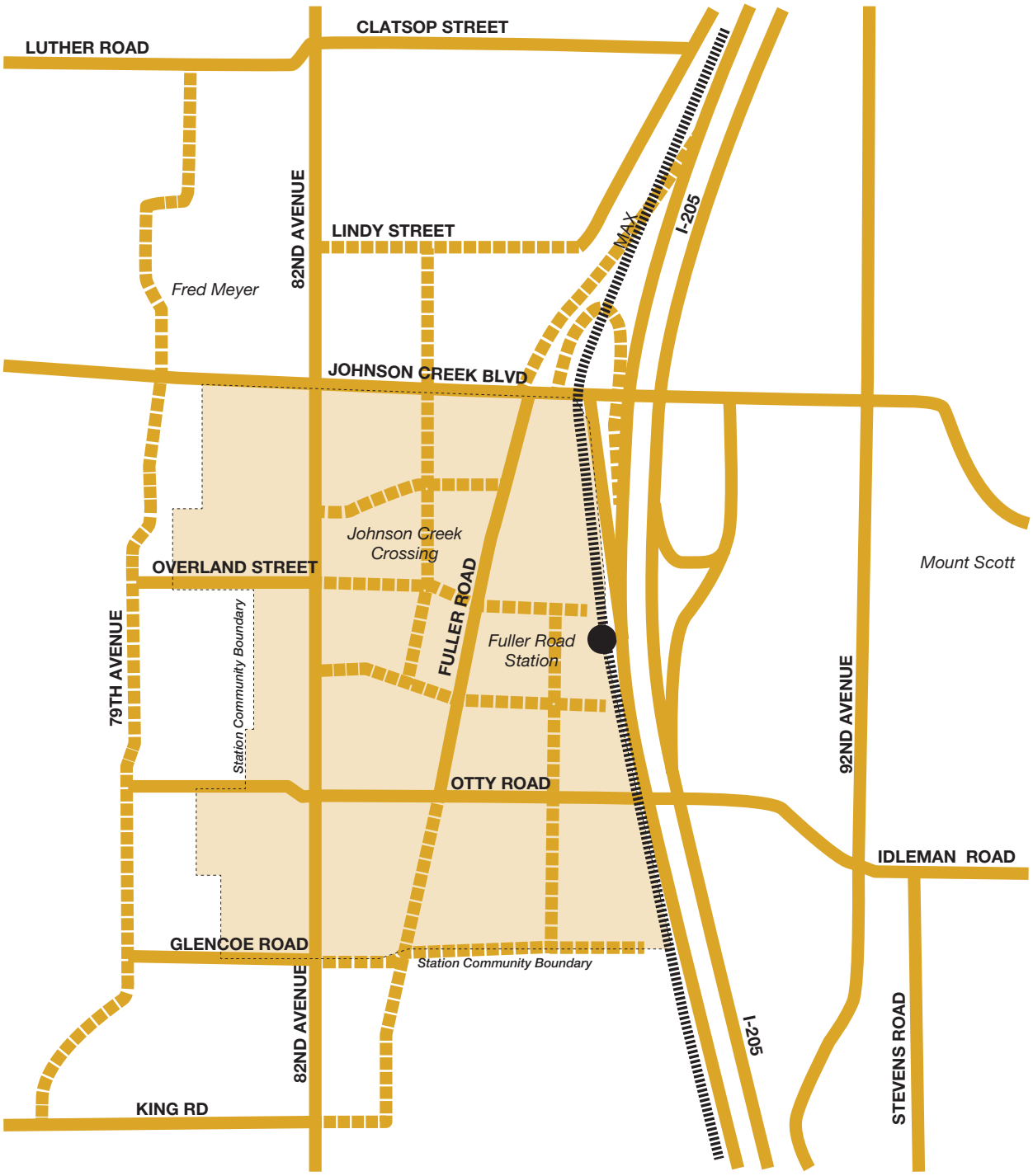


FIGURE 10 RECOMMENDED CORE TRAFFIC STREETS

LRT Alignment
LRT Station
Existing Streets
Proposed Streets

APPENDIX A
Fuller Road Station Area Plan
Implementation Plan

Introduction

The Fuller Road Station Area Plan sets out a vision for the area that will help property owners understand the value of the nearby light rail station and, ideally, also attract developers and businesses that have experience with the opportunity presented by light rail service. The Implementation Plan identifies steps that Clackamas County should take to transform the vision into action. It identifies a variety of public efforts and private actions, including public/private partnerships, that will be needed to create appropriate regulations, consolidate properties for development, build streets, improve other public facilities and offer incentives to the interested development community.

Local government actions and investment are necessary to generate developer interest in the Fuller Road Station Area and leverage the region's investment in light rail. However, it should be understood that for public actions to be effective, there must also be receptive property owners and knowledgeable developers who act in complementary ways. Public/private partnerships are most effective in implementing a plan such as the Fuller Road Station Area Plan. Private actions are primarily about investing in an economic opportunity, and public action will be needed to help property owners and developers understand the economic potential of the station area, which will be so different when the light rail station is completed than it has been in the past. The success of development in the Fuller Road Station Community will also require supportive market conditions and understanding and support from local citizens.

Major Tasks of the Implementation Plan

This Implementation Plan defines the specific tasks that Clackamas County should take to transform the Fuller Road vision into reality. Major tasks to implement the Plan include:

- Task 1: Establish accountability for implementing the plan.
- Task 2: Amend Clackamas County Comprehensive Plan
- Task 3: Amend Clackamas County Zoning and Development Ordinance (ZDO)
- Task 4: Amend Clackamas County Capital Improvement Plan (CIP) and Transportation System Plan (TSP)
- Task 5: Integrate Station Community Plan into Urban Renewal Programs
- Task 6: Build the road network
- Task 7: Build parks, plazas and other community amenities

Task 1: Establish accountability for implementing the plan.

For the Station Community to redevelop successfully, a community development specialist/project manager is vital to integrate programs, seize opportunities and advocate for the type of development that meets the needs of the community and is supported by the market. Clackamas County has the institutional responsibility to advocate for the interests of the larger community.

1. Create and carry out a County Planning Division work program to complete amendments to the Comprehensive Plan, Zoning and Development Ordinance, Transportation System Plan and Capital Improvement Plan.
2. Identify a community development/project manager, most likely within the Development Agency, to mange the longer-term projects in the Fuller Road station area plan.

Task 2: Amend Clackamas County Comprehensive Plan

The Clackamas County Comprehensive Plan documents the county's range of development and preservation policies, addressing topics such as transportation, land use, natural resources, economics and housing. Chapter 10 has area-specific "Design Plans," including one for the Clackamas Regional Center Area (CRCA) that contains the Fuller Road station area. In order to implement the Recommended Plan for the Fuller Road station area, the CRCA Design Plan will be amended. In addition, Chapter 5, the Transportation chapter of the Comprehensive Plan, will be reviewed to identify pertinent updates to transportation policies and the Transportation System Plan (TSP).

Steps to amend the Comprehensive Plan include the following:

1. Amend Chapter 10 to create a Station Community designation and Station Community boundary, modify the existing Corridor Commercial designation, amend maps and figures, and develop supporting policies.

   The Recommended Plan shows the proposed boundary of the Station Community (Figure 7) and proposed amendments to the design plan are included in Appendix C.

2. Review Chapter 5, Transportation, to identify possible amendments to policies on roadways, roadway guidelines, urban arterials, new roads, parking, transit, bikeways, and pedestrian network. When the TSP portion of Chapter 5 is updated, include TOD street network (streets with functional classification of collector or arterial) and the four intersection capacity improvements identified in the transportation analysis.

Task 3: Amend Clackamas County Zoning and Development Ordinance (ZDO)

In order to implement the Recommended Plan, the ZDO will be amended to include a new Station Community Mixed Use zone and to modify the existing Corridor Commercial zone within the Fuller Road Station Community.

The Recommended Plan encourages the county to develop a form-based code (FBC) to implement the plan rather than to revise the County's current zoning code model. FBC focuses on the visual aspect of development, such as building height and bulk, façade treatments, location of parking, and the relationship of the buildings to the street and to one another. The expectation is that development potential for all properties within an FBC area will increase. Existing buildings and businesses can continue to operate under the new FBC, with regulations established to limit only expansion or redevelop of non-conforming uses.

The goal is to develop the FBCs in late 2007 and adopt the ZDO amendments in spring 2008. The tasks to amend the ZDO are as follows:

1. Create and carry out a work program to develop FBC in fall 2007.
   This effort will be supported by a grant for "code development assistance" and work by the County Planning Division. The FBC will be applied in the new Station Community Mixed Use zone, the Corridor Commercial zone (that portion in the Station Community) and will affect the Design Review section. Descriptions of the three sections are as follows:

   ZDO Section 1705, Station Community Mixed Use Zone (SCMU)
   The new Station Community Mixed Used zone will implement the Station Community design type and be applied in the area currently zoned LTIC. (The LTIC zone will be deleted from the zoning code and from the zoning maps.) This zone is expected to be a relatively "pure" FBC to support development of mixed medium and higher density housing, office and institutional uses, and support retail and services.

   As part of the development of this ordinance, and also to be included in the other zoning district for the Station Community, identify master planning requirements for SCMU and Corridor Commercial (CC) zones within the Station Community: The alignment of future, master plan streets will be determined in the process of future development review. The Recommended Plan provides a great deal of flexibility in design for many of the streets in the TOD street network. This may be an enticement to development, but may also make implementation more challenging to ensure the master plan roads are actually constructed. This is most problematic within the CC zone where master plan roads are identified in locations where there currently are commercial structures. This master planning requirement should:

   a. Establish the standards (such as, development acreage, number of dwelling units and/or number of employees) which determine whether a master plan will be required of a new development.
   b. Identify the requirements for a master plan submittal. For example, master plans by new developments should show the relationship between the proposed development and parking, pedestrian amenities, and the TOD

street network. If a master plan is not needed, other requirements (such as fronting buildings toward new streets, requiring dedication of right-of-way, and constructing half-street improvements along the property frontage) may be imposed.

ZDO Section 1704, Corridor Commercial (CC)

The existing Corridor Commercial zone already allows a mix of uses including residential development, which is intended to support the high level of transit usage along SE 82nd Avenue, so no changes are recommended to uses allowed in this zone. FBC development criteria to support innovative development proposals where the design of the development encourages pedestrian trips and transit use will be required for new development within the Station Community boundaries.

ZDO Section 1102, Design Review

Specific development criteria will be established through FBC for the Station Community Mixed Use zone and the Corridor Commercial zone within the Station Community. Because FBC adheres to specific design criteria, requiring design review through the Design Review Committee will be vital to a successful Station Community development. The following steps are recommended:

a. Require all development proposals within the Fuller Road Station Community to be evaluated by the County Design Review Committee.
b. Select at least one member of the Design Review Committee with an urban design background and familiarity with FBCs.
c. Conduct training in FBC for the Design Review Committee to ensure that that the committee will gain expertise to implement FBC, or
d. Hire a consultant to review proposals if there is insufficient in-house expertise in urban design.

1. Review other ZDO sections, such as section 1007 (Roads, Circulation and Parking), that may need amendments to support the Fuller Road station area plan.
2. Present the ZDO amendment recommendations to the Planning Commission and to the Board of Commissioners in spring 2008.

Task 4: Amend Clackamas County Transportation System Plan (TSP) and Capital Improvement Plan (CIP)

The County's Transportation System Plan (TSP) identifies the capital transportation projects that will be needed over a twenty-year timeframe, and the project list is adopted in the County Comprehensive Plan (Chapter 5). Transportation projects from the station area plan will be included in the planned road network when the TSP is next updated (possibly in 2008-2009).

The County's Capital Improvement Plan (CIP) implements the TSP goals and projects by prioritizing all the transportation projects, identifying funding sources, and

selecting projects that will be funded within a five-year period. The CIP provides for interim updates if the County Commissioners determine the need to add (or delete) projects. In the 2008 update of the CIP, the applicable Fuller Road station area transportation projects will be recommended to be included in the CIP project list.

Task 5: Integrate the Station Community Plan into County Urban Renewal Programs

Two urban renewal districts, the Clackamas Town Center Area and the North Clackamas Revitalization Area, are in the Station Community. Although the financing capacity of the two programs is primarily obligated to other projects, the Urban Renewal Programs should acknowledge the importance of investing in the area around the Fuller Road Station, and invest in it to the extent feasible and appropriate given their budgets and programs. The two Urban Renewal plans already accommodate the implementation projects identified in the Fuller Road Station Area Plan.

The following tasks are aimed to encourage a high level of involvement by the Development Agency to implement significant portions of the Fuller Road station area plan.

1. Integrate the Fuller Road Station Area projects into the appropriate urban renewal plan and program when possible.
2. Provide leadership, management and advocacy for the plan. For example:
    a. Coordinate with developers to build roads, planned facilities and urban design amenities, such as plazas, pocket parks, and gateways. Leverage public funds with private development.
    b. Identify and leverage sources of funding and development assistance such as the Metro TOD program and Oregon Vertical Housing Credit.
    c. Facilitate the use of tax incentive programs that are available to private investors and developers. These programs create financial incentives through tax reductions to invest in specific projects, such as transit supportive developments or affordable housing.
3. Identify and acquire key parcels for right-of-way (in particular for the TOD street network) and site consolidation, and acquire to the extent feasible and appropriate given budgets and programs. Utilize all available funding sources.
4. Work with the County's Business Development staff to assist businesses in the station community area to relocate, when this is needed. For example, Miles Fiberglass, located within the Clackamas Town Center Urban Renewal Area, occupies a parcel just south of the light rail station in the southeast portion of the Station Community. The business may be hampered by trucking limitations and the owners are also interested in capitalizing on the opportunities provided by light rail. They are interested in moving the existing business to another location

(when the time is right), and the Development Agency could facilitate this relocation, freeing the site for a transit supportive development.

5. As part of the long-term plan, the Development Agency should work with TriMet to structure the park-and-ride lot, which would open up about three acres for redevelopment.

Task 6: Build the TOD and Core Street network

Good connectivity within the Station Community will be essential to create a successful development environment. While financing for these improvements could be public or from private development alone, most often public/private partnerships will be needed to fund and construct the street network.

All of the proposed street improvements shown on Figure 2 of the Recommended Plan are important, but priority attention should be given to the following projects:

- SE Overland Street extension
- SE Clackamas Road and SE Lamphier Street extensions
- The north-south connection (SE 83rd) to SE Johnson Creek Boulevard east of SE 82nd Avenue.
- Multi-use trail

These connections will improve access to the Station Community and begin to create a block pattern more conducive for pedestrians. In addition, the multi-use trail should be upgraded to reflect its role in connecting the I-205 stations to adjacent neighborhoods north and south of the Station Area.

Cost estimates for the streets are attached at the end of the Implementation Plan.

Task 7: Build parks, plazas and other community amenities

The plan also identifies the need for urban design features, such as plazas, pocket parks and gateway features. Tasks to implement these features are as follows:

1. Identify county or other program funding that may be used to support design features in the Fuller Road station area plan.
2. Evaluate development proposals and master plans for potential to support one of these design features.
3. Work with the North Clackamas Parks and Recreation District on park site identification, funding, acquisition and development.

Summary of Cost Estimates for Fuller Road TOD Projects

Street Name	Improvement	Classification	Cost with Contingency	Cost with Contingency	Length	Cost/ft	Cost without Contingency	Cost/ft
			2007 $	2025 $				
SE 79TH Avenue	New Road/ Upgrade	Collector	$24,310,943	$41,388,000	5500	$4,420	$12,467,150	$2,267
SE Lindy Street	Road Extension	Neighborhood Street	$4,246,798	$7,230,000	1330	$3,193	$2,177,845	$1,637
*SE 83rd Avenue	New Road	Neighborhood Street /Minor	$8,571,722	$14,593,000	2170	$3,950	$4,395,755	$2,026
*SE Clackamas Street	Road Extension	Neighborhood Street	$3,041,747	$5,179,000	920	$3,306	$1,559,870	$1,696
*SE Overland Street	Road Extension	Neighborhood Street	$2,554,559	$4,349,000	820	$3,115	$1,310,030	$1,598
SE Con Battin Road	Road Upgrade	Neighborhood Street	$1,743,641	$2,969,000	550	$3,170	$894,175	$1,626
*SE Lamphier Street	Road Extension	Neighborhood Street	$4,407,634	$7,504,000	1350	$3,265	$2,260,325	$1,647
SE 84th Avenue	New Road	Neighborhood Street	$5,557,247	$9,461,000	1720	$3,231	$2,849,870	$1,657
SE Fuller Road	New Road	Minor Street	$8,688,284	$14,792,000	1920	$4,525	$4,455,530	$2,321
SE Glencoe Road	Road Extension	Neighborhood Street	$5,228,184	$8,901,000	1620	$3,227	$2,681,120	$1,655
SE 82nd Avenue	Upgrade	Major Arterial	$8,357,300	$14,228,000	3530	$2,368	$4,285,795	$1,214
SE Johnson Creek Blvd	Upgrade	Minor Arterial	$2,275,865	$3,875,000	2610	$872	$1,167,110	$447
I-205 multi-use trail	Widening	Multi-use trail	$1,416,855	$2,413,000	3300	$429	$914,100	$277
TOTALS			$80,400,776	$136,882,000			$41,418,675	

* Projects listed as priorities in Task 6.

Summary of Cost Estimates for Fuller Road TOD Project

Map Code	Street Name	Improvement	Classification	Cost with Contingency 2007 $	Cost with Contingency 2025 $	Length	Cost per foot	Cost without Contingency	Cost per foot
A	SE 79TH Avenue	New Road/Upgrade	Collector	$ 24,310,943	$ 41,388,000	5500	$ 4,420.17	$ 12,467,150	$ 2,266.75
B	SE Lindy Street	Road Extension	Neighborhood Street	$ 4,246,798	$ 7,230,000	1330	$ 3,193.08	$ 2,177,845	$ 1,637.48
C	SE 83rd Avenue	New Road	Neighborhood Street/Minor Street	$ 8,571,722	$ 14,593,000	2170	$ 3,950.10	$ 4,395,755	$ 2,025.69
D	SE Clackmas Street	Road Extension	Neighborhood Street	$ 3,041,747	$ 5,179,000	920	$ 3,306.25	$ 1,559,870	$ 1,695.51
E	SE Overland Street	Road Extension	Neighborhood Street	$ 2,554,559	$ 4,349,000	820	$ 3,115.32	$ 1,310,030	$ 1,597.60
F	SE Con Batin Road	Road Upgrade	Neighborhood Street	$ 1,743,641	$ 2,969,000	550	$ 3,170.26	$ 894,175	$ 1,625.77
G	SE Lamphier Street	Road Extension	Neighborhood Street	$ 4,407,634	$ 7,504,000	1350	$ 3,264.91	$ 2,260,325	$ 1,674.31
H	SE 84th Avenue	New Road	Neighborhood Street	$ 5,557,247	$ 9,461,000	1720	$ 3,230.96	$ 2,849,870	$ 1,656.90
I	SE Fuller Road	New Road	Minor Street	$ 8,688,284	$ 14,792,000	1920	$ 4,525.15	$ 4,455,530	$ 2,320.59
J	SE Glencoe Road	Road Extension	Neighborhood Street	$ 5,228,184	$ 8,901,000	1620	$ 3,227.27	$ 2,681,120	$ 1,655.01
K	SE 82nd Avenue	Upgrade	Major Arterial	$ 8,357,300	$ 14,228,000	3530	$ 2,367.51	$ 4,285,795	$ 1,214.11
L	SE Johson Creek Blvd	Upgrade	Minor Arterial	$ 2,275,865	$ 3,875,000	2,610	$ 871.98	$ 1,167,110	$ 447.17
M	I-205 multi-use path	Widening	Multi-use path	$ 1,416,855	$ 2,413,000	3,300	$ 429.35	$ 914,100	$ 277.00
			TOTALS	**$ 80,400,776**	**$ 136,882,000**			**$ 41,418,675**	

Reference Map

2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE 79th Avenue (A)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 5,500 Foot extension/upgrade of SE 79th Avenue between Luther Road and King Road

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	16500	LF	$ 30.00	$	495,000
Remove Curb	3350	LF	$ 15.00	$	50,250
Remove Sidewalk	2483	**LF**	$ 15.00	$	37,250
Grading	99000	SF	$ 4.00	$	396,000
Pavement	219500	**SF**	$ 30.00	$	6,585,000
Sidewalk	11000	**LF**	$ 50.00	$	550,000
Bike lane	66000	**SF**	$ 30.00	$	1,980,000
Curb & Gutter	11000	LF	$ 35.00	$	385,000
Landscaping	5500	LF	$ 50.00	$	275,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	11000	LF	$ 50.00	$	550,000
Full Drainage	2620	LF	$ 75.00	$	196,500
Drainage Modifications	2880	LF	$ 30.00	$	86,400
Driveway Adjustments	7	EA	$ 5,000.00	$	35,000
Traffic Signal	3	Unit	$ 250,000.00	$	750,000
Signing and Striping	5500	LF	$ 6.50	$	35,750
Traffic Control	6	EA	$ 10,000.00	$	60,000
SUBTOTAL (2007 DOLLARS) →				***$***	***12,467,150***
Right-of-way			25%	$	3,116,788
Design/Administration/Management			15%	$	1,870,073
Contingency			40%	$	4,986,860
Mobilization			10%	$	1,246,715
Project Development			5%	$	623,358
TOTAL (2007 DOLLARS) →				**$**	**24,310,943**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**17,076,810**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 41,388,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

DKS *Associates*
June 2007
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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE Lindy Street (B)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 1350 Foot Extesnion of SE Lamphier Street

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	2280	LF	$ 30.00	$	68,400
Remove Curb	540	LF	$ 15.00	$	8,100
Remove Sidewalk	1773	**LF**	$ 15.00	$	26,600
Grading	13680	SF	$ 4.00	$	54,720
Pavement	48600	**SF**	$ 30.00	$	1,458,000
Sidewalk	2700	**LF**	$ 50.00	$	135,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	2700	LF	$ 35.00	$	94,500
Landscaping	1350	LF	$ 50.00	$	67,500
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	2700	LF	$ 50.00	$	135,000
Full Drainage	1350	LF	$ 75.00	$	101,250
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	2	EA	$ 5,000.00	$	10,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	1350	LF	$ 6.50	$	8,775
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS) →				***$***	***2,177,845***
Right-of-way			25%	$	544,461
Design/Administration/Management			15%	$	326,677
Contingency			40%	$	871,138
Mobilization			10%	$	217,785
Project Development			5%	$	108,892
TOTAL (2007 DOLLARS) →				**$**	**4,246,798**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**2,983,091**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 7,230,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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June 2007
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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: New Street SE 83rd Avenue (C)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 2170 Foot new street between Lindy Street and the Overland Street extension

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	6000	LF	$ 30.00	$	180,000
Remove Curb	1300	LF	$ 15.00	$	19,500
Remove Sidewalk	3083	**LF**	$ 15.00	$	46,250
Grading	36000	SF	$ 4.00	$	144,000
Pavement	80800	**SF**	$ 30.00	$	2,424,000
Sidewalk	4340	**LF**	$ 50.00	$	217,000
Bike lane	17100	**SF**	$ 30.00	$	513,000
Curb & Gutter	4340	LF	$ 35.00	$	151,900
Landscaping	2170	LF	$ 50.00	$	108,500
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	4340	LF	$ 50.00	$	217,000
Full Drainage	4340	LF	$ 75.00	$	325,500
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	5	EA	$ 5,000.00	$	25,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	2170	LF	$ 6.50	$	14,105
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS)				***$***	***4,395,755***
Right-of-way			25%	$	1,098,939
Design/Administration/Management			15%	$	659,363
Contingency			40%	$	1,758,302
Mobilization			10%	$	439,576
Project Development			5%	$	219,788
TOTAL (2007 DOLLARS)				**$**	**8,571,722**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**6,021,061**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 14,593,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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June 2007

2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE Clackamas Street (D)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 920 foot extension of SE Clackamas Street from SE 82nd Avenue to SE Fuller Road.

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	2760	LF	$ 30.00	$	82,800
Remove Curb	590	LF	$ 15.00	$	8,850
Remove Sidewalk	600	**LF**	$ 15.00	$	9,000
Grading	16560	SF	$ 4.00	$	66,240
Pavement	33120	**SF**	$ 30.00	$	993,600
Sidewalk	1840	**LF**	$ 50.00	$	92,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	1840	LF	$ 35.00	$	64,400
Landscaping	920	LF	$ 50.00	$	46,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	1840	LF	$ 50.00	$	92,000
Full Drainage	920	LF	$ 75.00	$	69,000
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	2	EA	$ 5,000.00	$	10,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	920	LF	$ 6.50	$	5,980
Traffic Control	2	EA	$ 10,000.00	$	20,000
SUBTOTAL (2007 DOLLARS) →				***$***	***1,559,870***
Right-of-way			25%	$	389,968
Design/Administration/Management			15%	$	233,981
Contingency			40%	$	623,948
Mobilization			10%	$	155,987
Project Development			5%	$	77,994
TOTAL (2007 DOLLARS) →				**$**	**3,041,747**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**2,136,623**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 5,179,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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June 2007

2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE Overland Street (E)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 820 foot extension of SE Overland Street between 82nd Avenue and Fuller Road

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	1075	LF	$ 30.00	$	32,250
Remove Curb	860	LF	$ 15.00	$	12,900
Remove Sidewalk	1147	**LF**	$ 15.00	$	17,200
Grading	6450	SF	$ 4.00	$	25,800
Pavement	29520	**SF**	$ 30.00	$	885,600
Sidewalk	1640	**LF**	$ 50.00	$	82,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	1640	LF	$ 35.00	$	57,400
Landscaping	820	LF	$ 50.00	$	41,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	1640	LF	$ 50.00	$	82,000
Full Drainage	310	LF	$ 75.00	$	23,250
Drainage Modifications	510	LF	$ 30.00	$	15,300
Driveway Adjustments	2	EA	$ 5,000.00	$	10,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	820	LF	$ 6.50	$	5,330
Traffic Control	2	EA	$ 10,000.00	$	20,000
SUBTOTAL (2007 DOLLARS) →				***$***	***1,310,030***
Right-of-way			25%	$	327,508
Design/Administration/Management			15%	$	196,505
Contingency			40%	$	524,012
Mobilization			10%	$	131,003
Project Development			5%	$	65,502
TOTAL (2007 DOLLARS) →				**$**	**2,554,559**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**1,794,406**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 4,349,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE Con Battin Road (F)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 550 foot upgrade between Fuller Road and Cul-de-sac

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	1650	LF	$ 30.00	$	49,500
Remove Curb	0	LF	$ 15.00	$	-
Remove Sidewalk	0	**LF**	$ 15.00	$	-
Grading	9900	SF	$ 4.00	$	39,600
Pavement	19800	**SF**	$ 30.00	$	594,000
Sidewalk	1100	**LF**	$ 50.00	$	55,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	1100	LF	$ 35.00	$	38,500
Landscaping	550	LF	$ 50.00	$	27,500
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	1100	LF	$ 50.00	$	55,000
Full Drainage	0	LF	$ 75.00	$	-
Drainage Modifications	550	LF	$ 30.00	$	16,500
Driveway Adjustments	1	EA	$ 5,000.00	$	5,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	550	LF	$ 6.50	$	3,575
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS) →				***$***	***894,175***
Right-of-way			25%	$	223,544
Design/Administration/Management			15%	$	134,126
Contingency			40%	$	357,670
Mobilization			10%	$	89,418
Project Development			5%	$	44,709
TOTAL (2007 DOLLARS) →				**$**	**1,743,641**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**1,224,791**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 2,969,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE Lamphier Street (G)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 1350 Foot Extesnion of SE Lamphier Street

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	4050	LF	$ 30.00	$	121,500
Remove Curb	540	LF	$ 15.00	$	8,100
Remove Sidewalk	900	**LF**	$ 15.00	$	13,500
Grading	24300	SF	$ 4.00	$	97,200
Pavement	48600	**SF**	$ 30.00	$	1,458,000
Sidewalk	2700	**LF**	$ 50.00	$	135,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	2700	LF	$ 35.00	$	94,500
Landscaping	1350	LF	$ 50.00	$	67,500
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	2700	LF	$ 50.00	$	135,000
Full Drainage	1350	LF	$ 75.00	$	101,250
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	2	EA	$ 5,000.00	$	10,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	1350	LF	$ 6.50	$	8,775
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS) →				***$***	***2,260,325***
Right-of-way			25%	$	565,081
Design/Administration/Management			15%	$	339,049
Contingency			40%	$	904,130
Mobilization			10%	$	226,033
Project Development			5%	$	113,016
TOTAL (2007 DOLLARS) →				**$**	**4,407,634**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**3,096,068**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 7,504,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

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Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

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PROJECT AREA/LOCATION: New Street SE 84th Avenue (H)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 1720 Foot new street between Lindy Street and the Overland Street extension

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	5160	LF	$ 30.00	$	154,800
Remove Curb	120	LF	$ 15.00	$	1,800
Remove Sidewalk	83	**LF**	$ 15.00	$	1,250
Grading	30960	SF	$ 4.00	$	123,840
Pavement	61920	**SF**	$ 30.00	$	1,857,600
Sidewalk	3440	**LF**	$ 50.00	$	172,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	3440	LF	$ 35.00	$	120,400
Landscaping	1720	LF	$ 50.00	$	86,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	3440	LF	$ 50.00	$	172,000
Full Drainage	1720	LF	$ 75.00	$	129,000
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	2	EA	$ 5,000.00	$	10,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	1720	LF	$ 6.50	$	11,180
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS) →				***$***	***2,849,870***
Right-of-way			25%	$	712,468
Design/Administration/Management			15%	$	427,481
Contingency			40%	$	1,139,948
Mobilization			10%	$	284,987
Project Development			5%	$	142,494
TOTAL (2007 DOLLARS) →				**$**	**5,557,247**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**3,903,594**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 9,461,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE Fuller Road (I)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 1920 Foot extension of SE Fuller Road between 82nd Avenue and SE Otty Road

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	4350	LF	$ 30.00	$	130,500
Remove Curb	2600	LF	$ 15.00	$	39,000
Remove Sidewalk	623	**LF**	$ 15.00	$	9,350
Grading	26100	SF	$ 4.00	$	104,400
Pavement	72960	**SF**	$ 30.00	$	2,188,800
Sidewalk	3840	**LF**	$ 50.00	$	192,000
Bike lane	23040	**SF**	$ 30.00	$	691,200
Curb & Gutter	3840	LF	$ 35.00	$	134,400
Landscaping	1920	LF	$ 50.00	$	96,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	3840	LF	$ 50.00	$	192,000
Full Drainage	1550	LF	$ 75.00	$	116,250
Drainage Modifications	370	LF	$ 30.00	$	11,100
Driveway Adjustments	4	EA	$ 5,000.00	$	20,000
Traffic Signal	2	Unit	$ 250,000.00	$	500,000
Signing and Striping	1620	LF	$ 6.50	$	10,530
Traffic Control	2	EA	$ 10,000.00	$	20,000
SUBTOTAL (2007 DOLLARS) →				***$***	***4,455,530***
Right-of-way			25%	$	1,113,883
Design/Administration/Management			15%	$	668,330
Contingency			40%	$	1,782,212
Mobilization			10%	$	445,553
Project Development			5%	$	222,777
TOTAL (2007 DOLLARS) →				**$**	**8,688,284**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**6,102,938**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 14,792,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

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PROJECT AREA/LOCATION: SE Glencoe Road (J)
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 1620 Foot extension of Glencoe Road between 82nd Avenue and I-205

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	4860	LF	$ 30.00	$	145,800
Remove Curb	60	LF	$ 15.00	$	900
Remove Sidewalk	183	**LF**	$ 15.00	$	2,750
Grading	29160	SF	$ 4.00	$	116,640
Pavement	58320	**SF**	$ 30.00	$	1,749,600
Sidewalk	3240	**LF**	$ 50.00	$	162,000
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	3240	LF	$ 35.00	$	113,400
Landscaping	1620	LF	$ 50.00	$	81,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	3240	LF	$ 50.00	$	162,000
Full Drainage	1620	LF	$ 75.00	$	121,500
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	1	EA	$ 5,000.00	$	5,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	1620	LF	$ 6.50	$	10,530
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS) →				***$***	***2,681,120***
Right-of-way			25%	$	670,280
Design/Administration/Management			15%	$	402,168
Contingency			40%	$	1,072,448
Mobilization			10%	$	268,112
Project Development			5%	$	134,056
TOTAL (2007 DOLLARS) →				**$**	**5,228,184**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**3,672,449**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 8,901,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

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Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: SE 82nd Avenue
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 3,530 Foot landscaping upgrade of SE 82nd Avenue between SE Jonhson Creek Boulevard and SE King Road

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	7040	LF	$ 30.00	$	211,200
Remove Curb	5100	LF	$ 15.00	$	76,500
Remove Sidewalk	5100	LF	$ 15.00	$	76,500
Grading new pavement	35040	SF	$ 4.00	$	140,160
Pavement - overlay	211200	SF	$ 2.00	$	422,400
Sidewalk	7040	LF	$ 50.00	$	352,000
Bike lane/new pavement	35040	SF	$ 30.00	$	1,051,200
Curb & Gutter	7040	LF	$ 35.00	$	246,400
Landscaping	7040	LF	$ 50.00	$	352,000
Wall	0	LF	$ 120.00	$	-
Structures	0	SF	$ 120.00	$	-
Lighting	7040	LF	$ 50.00	$	352,000
Full Drainage	0	LF	$ 75.00	$	-
Drainage Modifications	7040	LF	$ 30.00	$	211,200
Driveway Adjustments	4	EA	$ 5,000.00	$	20,000
Traffic Signal	3	Unit	$ 250,000.00	$	750,000
Signing and Striping	2190	LF	$ 6.50	$	14,235
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS)				***$***	***4,285,795***
Right-of-way**			25%	$	1,071,449
Design/Administration/Management			15%	$	642,869
Contingency			40%	$	1,714,318
Mobilization			10%	$	428,580
Project Development			5%	$	214,290
TOTAL (2007 DOLLARS)				**$**	**8,357,300**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**5,870,444**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 14,228,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

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PROJECT AREA/LOCATION: SE Johnson Creek Boulevard
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

A 2,610 Foot landscaping upgrade of SE Jonhson Creek Boulevard between SE 82nd Avenue and SE 92nd Avenue

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	3890	LF	$ 30.00	$	116,700
Remove Curb	3190	LF	$ 15.00	$	47,850
Remove Sidewalk	3190	**LF**	$ 15.00	$	47,850
Grading	23340	SF	$ 4.00	$	93,360
Pavement	0	**SF**	$ 2.00	$	-
Sidewalk	3890	**LF**	$ 50.00	$	194,500
Bike lane	0	**SF**	$ 30.00	$	-
Curb & Gutter	3890	LF	$ 35.00	$	136,150
Landscaping	3890	LF	$ 50.00	$	194,500
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	3890	LF	$ 50.00	$	194,500
Full Drainage	0	LF	$ 75.00	$	-
Drainage Modifications	3890	LF	$ 30.00	$	116,700
Driveway Adjustments	3	EA	$ 5,000.00	$	15,000
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	0	LF	$ 6.50	$	-
Traffic Control	1	EA	$ 10,000.00	$	10,000
SUBTOTAL (2007 DOLLARS) →				***$***	***1,167,110***
Right-of-way**			25%	$	291,778
Design/Administration/Management			15%	$	175,067
Contingency			40%	$	466,844
Mobilization			10%	$	116,711
Project Development			5%	$	58,356
TOTAL (2007 DOLLARS) →				**$**	**2,275,865**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**1,598,642**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 3,875,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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2025 BASE CONDITION + PROJECT

FULLER ROAD STATION AREA PLAN

Preliminary Draft Cost Estimate Summary

DRAFT

PROJECT AREA/LOCATION: I-205 Multi-Use Path
JURISDICTION: *Clackamas County*

PROJECT DESCRIPTION:

An approzimate 3,300 Foot multi-use path enhancement project

Linear Foot and Square Foot Cost Template

	UNITS		UNIT COSTS		ESTIMATED COST
Clear & Grub	1650	LF	$ 30.00	$	49,500
Remove Curb	0	LF	$ 15.00	$	-
Remove Sidewalk	0	**LF**	$ 15.00	$	-
Grading	9900	SF	$ 4.00	$	39,600
Pavement	0	**SF**	$ 10.00	$	-
Sidewalk	0	**LF**	$ 50.00	$	-
Bike lane	16500	**SF**	$ 30.00	$	495,000
Curb & Gutter	0	LF	$ 35.00	$	-
Landscaping	3300	LF	$ 50.00	$	165,000
Wall	0	LF	$ 120.00	$	-
Structures	0	**SF**	$ 120.00	$	-
Lighting	3300	LF	$ 50.00	$	165,000
Full Drainage	0	LF	$ 75.00	$	-
Drainage Modifications	0	LF	$ 30.00	$	-
Driveway Adjustments	0	EA	$ 5,000.00	$	-
Traffic Signal	0	Unit	$ 250,000.00	$	-
Signing and Striping	0	LF	$ 6.50	$	-
Traffic Control	0	EA	$ 10,000.00	$	-
SUBTOTAL (2007 DOLLARS) →				***$***	***914,100***
Right-of-way**			0%	$	-
Design/Administration/Management			15%	$	137,115
Contingency			25%	$	228,525
Mobilization			10%	$	91,410
Project Development			5%	$	45,705
TOTAL (2007 DOLLARS) →				**$**	**1,416,855**
Adjustment from 2007 to 2025 dollars @ 3% per year				**$**	**995,246**

APPROXIMATE ESTIMATED 2025 PROJECT COST: $ 2,413,000

Notes:

LF = Linear foot
SF = Square foot
EA = Each

Right-of-way (ROW) estimate was based on 35% of project construction cost. Estimate of 35% value based on research by DKS Associates for comparison of ROW for a project to completed construction project cost for projects located in Washington County.

Costs estimates are for 2007 dollars; annual adjustments are necessary to address inflation. Annual adjustment of 3% per year was selected based on average consumer price index increase over the past 20 years.

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APPENDIX B

DEVELOPMENT ASSUMPTIONS

The project team identified at a concept level the types of land uses and the quantity of potential development in the project area to analyze the potential traffic impacts for each alternative.

Methodology

The assumptions that guided the development scenarios included:

- Approximately 60 percent of the gross acreage was assumed to be developable. The remaining 40 percent of land was assumed to be undevelopable because it would be used as right-of-way, landscaped areas, parks etc.
- Development potential was based on floor area ratio (FAR) and the number of dwelling units per acre where residential units are proposed. FAR varied between 0.25 and 0.75 depending on the uses proposed and anticipated height of buildings.
- Average residential densities per acre were used to calculate the number of residential units rather than assuming high or low units/acre numbers.
- In areas where varied building stories are expected, such as 1 to 3 or 1 to 4 stories, the development program assumes two stories across the entire area, assuming that some blocks would develop with single story buildings while others would develop with taller buildings.
- No redevelopment of the mobile home park south of SE Otty was assumed under Alternative 2. Also, no redevelopment was assumed where the future Johnson Creek Boulevard/I-205 interchange will be constructed.

This methodology resulted in the total square footage for various uses and a number of residential units that might be generated under the proposed land use and transportation alternatives.

Projected Development

The alternatives were evaluated to determine how the area might develop, based on the proposed land use categories in each alternative. Total square footage for land use types were determined using assumptions described above. The results are shown in Table 1.

The alternatives vary slightly in size mainly because Alternative 1 and the recommended plan include parcels on the west side of SE 82nd Avenue whereas Alternative 2 does not. The recommended plan also does not include parcels north of SE 82nd Avenue or south of SE Glencoe Road. Overall, Alternative 1 would provide approximately 57 acres of buildable land, Alternative 2 would provide approximately 51 acres of land, and the recommended plan would provide approximately 47 acres of buildable land.

Table 1.Projected Development

Alternative	Area (Square Feet)	Acres (Gross)	Net Buildable Land (acres)	Net ft2	Retail ft2	Office/ Institutional ft2	Dwelling Units
Alternative 1	**4,188,000**	**95**	**57**	**2,492,400**	**607,950**	**727,200**	**746**
Alternative 2	**3,699,000**	**85**	**51**	**2,219,400**	**478,050**	**172,800**	**233**
Recommended Plan	**3,409,000**	**78**	**47**	**2,045,400**	**511,350**	**630,600**	**528**

Alternative 1, with its increased density for all uses compared to Alternative 2, would provide approximately 20 percent more retail space while the recommended plan would fall in the middle. The alternatives diverge in the amount of office/institutional space and the number of dwelling units; Alternative 1 and the recommended plan would provided up to four times the amount of office/institutional square footage and up to three times the number of dwelling units, the majority of which would be in the immediate vicinity of the station.

APPENDIX C
DRAFT COMPREHENSIVE PLAN LANGUAGE

CLACKAMAS REGIONAL CENTER AREA DESIGN PLAN

INTRODUCTION

Moving Towards a Preferred Future

The Clackamas Regional Center area, comprising about 2,100 acres, is a vital and growing part of the County. It is a major hub for the residential and business communities in the southeast Portland metropolitan area. The area has grown rapidly as urban services have been provided, and is poised for even more growth. Forecasts indicate that there will be 36,500 jobs within the study area and 7,600 housing units by the year 2017. This will about double the amounts present in 1994. As this change occurs over the next twenty years, the area is envisioned to transition to even more intensive uses, more mixes of land uses, better access for all modes of transportation and a more attractive visual character.

The Clackamas Regional Center Area Design Plan sets the framework for decision-making to meet the challenge of planning for growth and guiding the area to a preferred future identified by citizens, the business community, and public service providers.

The overall Clackamas County Comprehensive Plan is applicable to the Clackamas Regional Center Area. This chapter of the Comprehensive Plan describes the goals and policies that are specific to the Clackamas Regional Center Area. This chapter takes precedence where conflicts exist between it and the remainder of the Comprehensive Plan.

The area of application for the Clackamas Regional Center Area Design Plan is shown on Map X-CRC-1.

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REGION 2040 GROWTH CONCEPT PLAN DESIGN TYPES

The Clackamas Regional Center Area Design Plan focuses on three design-types identified in the Region 2040 Growth Concept Plan and Urban Growth Management Functional Plan: a "regional center", segments of three "corridors" and a "station community".

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Regional Center

An area with the Clackamas Town Center as its focus point is designated a "regional center". The boundary is shown on Map X-CRC-1. The Clackamas Regional Center is intended to be the focus of the most intense development and highest densities of employment and housing in unincorporated, urban Clackamas County, with high quality transit service and a multi-modal street network.

Corridors

Corridors are less dense than 'regional centers' and are intended to feature a high quality pedestrian environment and convenient access to transit, while continuing to meet the needs of the automobile. The corridors in the Clackamas Regional Center Design Plan Area are designated "regional streets" in the Region 2040 Functional Plan, and as such are expected to continue to support high levels of through and local vehicular traffic. The corridor areas are expected to transition to higher densities through infill and redevelopment.
Designated corridors are SE 82nd Avenue, Johnson Creek Boulevard, and Sunnyside Road.

Station Community

Station communities are areas of development centered around a light-rail or high capacity transit station that feature housing, offices and other employment, and a variety of shops and services that are easily accessible to pedestrians, bicyclists and transit users as well as vehicles. There are two Light Rail Transit stations planned for the I-205 MAX line in the Clackamas Regional Center Design Plan Area; adjacent to I-2-5 near SE Fuller Road, between SE Johnson Creek Blvd. and SE Otty Road, and adjacent to I-205, between SE Monterey Street and SE Sunnyside Street. A Station Community has been designated in the area around the Fuller Road station.

VISION AND GOALS

A Vision of how the area should look and function in 20 years was the first step in creating this plan. The Vision established the foundation upon which the plan was built. The Clackamas Regional Center Area Task Force developed and endorsed the following Vision for the Clackamas Regional Center Area in 1995:

Vision

Over the next 20 to 50 years the Clackamas Regional Center Area will be:

- The dominant commercial and business center for the east Portland metropolitan area;

- A cultural, civic and transportation center for the east Portland metropolitan area;

- An area of diverse residential neighborhoods, commercial districts, natural features, and public attractions and spaces that serve both the local community and the region.

Goals

To achieve this Vision, the Clackamas Regional Center Area Design Plan describes policies to guide decisions on land use, transportation, housing and urban design that:

- Allow and promote compact development as a means to encourage efficient use of land, promote non-auto trips, and protect air quality.

- Promote development patterns which use land efficiently and support transportation investments.

- Transition towards more intensive use of land through infill and redevelopment, and phased development of infrastructure and urban design improvements.

- Accommodate and encourage appropriate land uses in the Regional Center and along Corridors.

- Balance growth with the preservation of existing neighborhoods and affordable housing.

- Create districts and neighborhoods.

- Provide a range of housing types and density.

- Provide for more efficient parking.

- Provide or enhance public amenities such as open space, neighborhood parks, and public gathering places.

- Preserve and enhance natural features.

- Increase community attractions.

- Provide attractive streetscapes.

- Create civic spaces.
- Create a safe and pleasant environment.
- Incorporate design standards and guidelines that promote urban character.
- Increase visual identity.
- Provide a transportation network that provides for all modes of transportation.
- Improve circulation and connections for all modes of transportation.
- Maintain excellent regional access.

CLACKAMAS REGIONAL CENTER AREA DESIGN PLAN POLICIES

The following policies shall be applied in the Clackamas Regional Center Design Plan Area.

LAND USE POLICIES

I. LAND USE POLICIES GENERALLY

Map X-CRC-2 illustrates the Land Use Plan designations for the Clackamas Regional Center Design Plan Area. The following uses are allowed:

1.1 Mixed Use

Mixed uses shall be allowed in the Clackamas Regional Center Design Plan area in areas designated Commercial, High Density Residential and Regional Center High Density Residential. A mix of uses will be required to be master planned in Planned Mixed Use designated areas. A mix of uses will be allowed in Station Area Mixed Use designated areas in structures that meet Transit Oriented Development building orientation and design requirements.

1.0 Commercial

The following primarily retail commercial designations shall be provided in the Clackamas Regional Center Design Plan area: Regional Center Commercial, Retail Commercial, and Corridor Commercial.

Deleted: , and Low Traffic Impact Commercial

The following primarily office commercial designations shall be provided in the Clackamas Regional Center Design Plan Area: Regional Center Office and Office Commercial.
Commercial areas within the Clackamas Regional Center Design Plan Area shall:

1.1 Allow a mix of land uses on the development site.

1.2 Create a district accessible by all modes of transportation.

1.3 Create walkable districts by providing improvements and urbandesign features that encourage and support pedestrian use:

1.4 Allow land uses that generate pedestrian activity and transit ridership.

1.5 Require public or private street layouts that allow for future development of sites with redevelopment potential.

2.6 Maintain and improve pedestrian connections between commercial uses, transit corridors, recreation areas, open space and adjacent residential areas.

2.7 Locate all buildings to maximize access by emergency vehicles.

2.8 Require Design Review for all development.
2.9 In Station Communities, require master planning and development of the Transit Oriented Development street network and orientation of buildings and entrances to Transit Oriented Development streets. With the exception of 82nd Ave and SE Johnson Creek Blvd., all Transit Oriented Development streets will have shared, public, on-street parking to support building orientation and new buildings must be built according to Transit Oriented Design standards.

1.0 Multifamily Residential

The following primarily multifamily residential designations shall be provided in the Clackamas Regional Center Design Plan area: Regional Center High Density Residential, High Density Residential, Medium High Density Residential, and Medium Density Residential.

Multifamily areas within the Clackamas Regional Center Design Plan Area shall:

1.1 Establish minimum densities to help meet local and regional housing needs.

1.2 Provide for multifamily residential uses within walking distance of public transportation, parks, schools, employment areas and local shopping areas.

1.3 Create walkable districts by providing improvements and urban design features that encourage and support pedestrian use.

3.4 Locate all buildings to maximize access by emergency vehicles.

3.5 Require design review for all development.

2.0 Public and Community Use, Open Space

Public and Community use designations including open space shall be provided in the Clackamas Regional Center Design Plan Area.

3.0 Low Density Residential

Low density residential designations shall be provided in the Clackamas Regional Center Design Plan area.

4.0 Industrial

The following industrial designations shall be provided in the Clackamas Regional Center Design Plan Area: General Industrial, Light Industrial, and Business Park.

II. LAND USE POLICIES FOR THE CLACKAMAS REGIONAL CENTER DESIGN TYPE AREA

1.0 Within the Regional Center boundary shown on Map CRC-1, areas shall be planned to:

1.1 Provide for high intensity development to accommodate projected regional increases in housing and employment, including mixed use development.

1.2 Provide for and capitalize on high quality transit service.

1.1 Allow for a mix of land uses to support public transportation and bicycle and pedestrian usage.

1.2 Provide for the open space and recreation needs of residents and employees of the area.

1.3 Support a multi-modal street network.

1.1 2.0 Planned Mixed Use

The Planned Mixed Use designation allows for master planning and development on key opportunity sites in areas designated for mixed use on the Region 2040 Growth Concept map. Generally, because of size, location, good access, and proximity to supportive land uses and existing or planned transportation improvements, these sites can accommodate more growth than other areas and sites within the plan boundary.

1.1 Create an area with a mix of land uses, both within the site itself (mix of uses) and within buildings (mixed uses), which:

a. Provide for high employment and residential densities that support use of public transportation.

b. Protect key natural features.

a. Provide for essential public facilities and services, including parks and public spaces.

b. Are accessible by all modes of transportation.

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1.2 Establish through zoning required and allowed land uses, transportation improvements, and design standards that encourage and support pedestrian-oriented streets, buildings and public places. Apply specific requirements to specific Planned Mixed Use sites through zoning.

1.3 Apply the Planned Mixed Use designation within the Regional Center as shown on Map X-CRC-1.

2.4 Sites planned for Planned Mixed Use but zoned for other uses may be converted to Planned Mixed Use zoning when:

a. Adequate transit services are provided to the site; and,

b. Minimum site size requirements are satisfied.

2.0 Regional Center Office

3.1 Apply the Regional Center Office designation within the Regional Center boundary shown on Map X-CRC-1 to:

a. Areas with an historical commitment to office use.

b. Areas served by high capacity transit service.

c. Areas with high visibility from a freeway.

d. Areas generally within ½ mile of a freeway interchange.

1.1 Provide support services for office development.

1.2 Limit retail uses in order to maximize the land available for office uses and to provide for the highest employment density in the Regional Center.

1.3 Require a minimum density to help meet regional employment needs, support public transportation and use land more efficiently.

1.4 Create walkable districts within the regional center with improvements, urban design features, and urban design standards that encourage and support pedestrian use.

3.6 Require master plans of large sites to allow for future development of sites with redevelopment potential.

3.0 Regional Center High Density Residential

Within the adopted Regional Center boundary, designate areas suitable for the highest density multifamily uses as Regional Center High Density Residential.

1.1 Determine the density of development through zoning.

1.2 Provide for multifamily residential uses within walking distance of public transportation, parks, schools, employment areas and local shopping areas.

1.3 Allow for a mix of land uses provided the minimum residential density is achieved for the entire development site prior to or concurrent with establishment of other allowed uses.

4.0 Regional Center Commercial

Apply the Regional Center Commercial zone to areas with an historic commitment to commercial uses within the adopted Regional Center boundary as shown on Map X-CRC-1.

1.1 Provide areas for regional and local shopping.

1.2 Require a minimum floor area ratio to help meet regional employment needs, support public transportation and use land more efficiently.

1.3 Create walkable districts within the regional center with improvements, urban design features, and urban design standards that encourage and support pedestrian use.

5.0 Amendments to the Clackamas Regional Center Boundary

The Clackamas Regional Center boundary may be amended to include property within the Clackamas Regional Center when all of the following criteria are met:

1.1 The property is contiguous to the Clackamas Regional Center boundary.

1.2 The area is, or is planned to be, a focus of compact, high density development with a mix of uses.

1.3 The area has, or is planned to have, high quality transit service, and a multi-modal street network.

1.4 The area has, or is planned to have; a density of 60 persons per acre on lands developed or planned to be developed (not including open space, parks, plazas or natural areas).

III. LAND USE POLICIES FOR CORRIDOR DESIGN TYPE AREAS

1.0 Land uses in Corridors shall be planned to:

1.1 Provide for both employment and housing, including mixed use.

1.2 Emphasize providing for a high level of bus usage, with land uses and transportation facilities to support bus use.

1.3 Encourage and support pedestrian travel with supportive land uses, frequent street connections, and sidewalks and pedestrian-ways.

1.4 Provide for vehicular traffic and auto-oriented uses, while expanding the share of trips via transit and other modes.

2.0 Corridor Land Use Designations

A range of land use designations may be applied within a designated Corridor as shown on Map X-CRC-2 may be designated in corridors as identified on Map X-CRC-1. Each corridor shall include within its area land use designations which provide primarily for employment and shopping, and land use designations that provide primarily for residences.

2.1 Commercial designations that may be applied include: Corridor Commercial, Retail Commercial, Low Traffic Impact Commercial, and Office Commercial. Any site designated for a commercial use shall be located adjacent to the Corridor Street.

2.2 Multifamily designations that may be applied include: High Density Residential and Medium High Density Residential. Multifamily designations should generally be located so as to form a buffer between commercial uses adjacent to the corridor street and low density residential areas located outside the corridor.

2.3 Industrial designations that may be applied in corridors include: Light Industrial and Business Park.

1.4 Existing single family neighborhoods and mobile home parks should be zoned to discourage redevelopment to other uses.

3.0 Corridor Commercial

3.1 The following areas may be designated Corridor Commercial when located within a transportation corridor as identified on Map X-CRC-1 and when all of the following criterion have been met:

a. The site has an historical commitment to commercial uses,

b. The designation will not cause a decrease in housing capacity in the county,

c. The designation will not cause a significant traffic increase on local streets serving residential areas,

d. Adverse effects including but not limited to traffic and noise, will have a minimal effect on adjacent neighborhoods or can be minimized through on-site improvements, and

e. The designation will not substantially increase an existing commercial strip or create new strips.

1.1 Provide commercial areas located in transportation corridors to meet local and regional needs for a wide range of goods and services.

1.2 Provide for the sale of large-scale items in areas with good transportation access and minimal conflict with other uses.

1.3 Allow mixed uses in the same building(s) or in a separate building(s) in the development.

3.5 Establish design and dimensional standards that encourage and support pedestrian use.

IV. LAND USE POLICIES FOR THE STATION COMMUNITY DESIGN TYPE AREA

1.0 Within the Station Area Community boundary shown on Map CRC-1, areas shall be planned to:

1.1 Provide for development utilizing urban design elements that create and support a dynamic, safe and convenient public realm made up of inter-connected streets, parking areas, parks and plazas framed by buildings with facades and entrances facing the streets and meeting other requirements of Transit Oriented Design.

1.2 Provide for a mix of retail, services, office and high intensity housing in buildings meeting the requirements of Transit Oriented Design, located on a street network with excellent pedestrian connectivity and supportive of local services, bicycle and pedestrian usage, and High Capacity Transit ridership.

1.3 Support a multi-modal street network with shared, public on-street parking on all but the most heavily traveled streets, building facades and entrances oriented to the street, and parking located to the side and behind buildings.

1.4 Provide for the open space and recreation needs of residents and employees of the area.

2.0 Corridor Commercial

2.1 The Corridor Commercial designation includes special provisions for properties located in Station Communities.

2.2 Apply the Corridor Commercial designation within the Station Community boundary shown on Map X-CRC-1 to:

a. Areas with an historical commitment to retail uses.

b. Areas with high visibility and access from a major arterial street.

c. Areas located within ½ mile of a high capacity transit station, and providing actual or potential pedestrian connections between high capacity and bus transit.

2.3 Create an area with a mix of land uses, both within the site itself (mix of uses) and within buildings (mixed uses), which:

a. Provide for high employment and residential densities that support use of public transportation.

b. Provide for essential public facilities and services, including shared public parking on public and private streets, accessible and attractive walkways between and through developments and public spaces.

c. Are accessible by all modes of transportation.

d. Orientation of buildings and parking areas to support and encourage pedestrian trips both between and through developments.

.

2.4 Establish through zoning required and allowed land uses, transportation improvements, and design standards that encourage and support pedestrian-oriented streets, buildings and public places.

a. Requiring master planning and development of the Transit Oriented Design (TOD) street network shown on Map X-XXXX.

b. Require development and redevelopment of buildings to meet Transit Oriented Design requirements.

3.0 Station Community Mixed Use

3.1 Apply the Station Community Mixed Use designation within the Station Community boundary shown on Map X-CRC-1 to:

a. Areas with an historical commitment to residential, office and employment uses.

b. Areas within close proximity to high capacity transit service.

c. Areas with access to major and minor arterial and collector streets.

3.2 Create an area with a mix of residential, office, service and service commercial uses within buildings and developments that meet Transit Oriented Development Standards, which:

a. Provide for high residential and employment densities that support use of public transportation.

b. Provide for essential public facilities and services, including shared public parking on public and private streets, accessible and attractive walkways between and through developments, and public parks and plazas.

c. Require orientation of buildings and parking areas to support and encourage pedestrian trips and utilization of high capacity transit.

3.3 Establish through zoning required and allowed land uses, transportation improvements, and design standards that encourage and support pedestrian-oriented streets, buildings and public places.

a. Require development and redevelopment of buildings to meet Transit Oriented Design requirements.

1.1 Build public and private streets within the Station Community to the standards illustrated in Figures X –XXXX – XXXX.

5.0 Study providing on-street parking on 82nd Avenue if future conditions warrant it.

V. LAND USE POLICIES FOR OTHER AREAS WITHIN THE CLACKAMAS REGIONAL CENTER DESIGN PLAN AREA

1.0 A range of land use designations shall be provided in portions of the Clackamas Regional Center Design Plan Area located outside the Regional Center and Corridors.

1.1 Land use designations shall generally increase in level of intensity in areas close to the Regional Center and Corridors.

1.2 Land use designations shall maintain the character of existing neighborhoods by providing for uses and improvements that are consistent with the type and scale of existing development.

1.3 Employment uses shall be provided for in the Regional Center or Corridors, and/or in locations adjacent to streets that are at least minor arterials.

VI. ILAND USE POLICIES: LAND USE DESIGNATIONS THAT MAY APPLY THROUGHOUT THE CLACKAMAS REGIONAL CENTER DESIGN PLAN AREA

1.0 High Density Residential

In the High Density Residential district, allow for a mix of land uses as a limited use.

2.0 Low Density Residential – 5,000 and 2,500 square foot lots

In the Low Density Residential district, include 5,000 square foot and 2,500 square foot lot size low density residential zones, subject to Policy 2.0 of the Land Use Chapter, Residential Section of the Comprehensive Plan.

3.0 Low Density Residential – Single Family Attached

3.1 In Low Density Residential areas, areas may be zoned for single family attached residences on lots that average 2,500 square feet when the area has access to a residential collector or higher functional class street.

3.2 The size of the site and adjoining properties zoned for 2,500 square foot lots should generally not exceed ten (10) acres. Sites greater than 10 acres must include a combination of

Deleted: 1.0 . Low Traffic Impact Commercial¶
¶
<#>Areas may be designated Low Traffic Impact Commercial when both of the following criteria are met:¶
¶
<#>The area is located on at least a minor arterial street, and .
¶
<#>The area has excellent visibility where uses with low peak hour traffic generation are necessary to help reduce the traffic impacts on inadequate intersections.¶
¶
<#>Allow uses with low peak hour traffic generation as specified in the Institute of Traffic Engineers Trip Generation Manual or other professionally recognized resources.¶
¶
<#>Maintain and improve automobile and pedestrian connections between commercial uses, transit corridors, recreation areas, open space and adjacent residential areas.¶
¶
<#>Require street layouts that provide for future development of the site or adjacent property.¶
¶
<#>Areas designated Low Traffic Impact Commercial may be considered for other zones when sufficient capacity is added to the street system to accommodate higher peak volume traffic loads. ¶
¶
<#>Require design review for all development.¶
¶
2

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attached and detached housing within the allowed Single Family Attached density.

3.3 Design dwellings to provide variation in architectural appearance.

3.4 Require Design Review for single family attached residences. Deleted: 4

URBAN DESIGN, PUBLIC AMENITIES, AND OPEN SPACE POLICIES

Design and development standards and physical improvements tie together land use and transportation to create a more "livable" community. Urban Design elements have been identified that will improve access by all modes of transportation; provide public amenities such as parks and accessible trails for recreational use; create public gathering places, and protect key natural features such as stream corridors and forested hillsides.

VII. URBAN DESIGN ELEMENTS

1.0 Establish design and dimensional standards that provide pedestrian oriented streets, buildings and public spaces.

2.0 Provide for the most intense development around public transportation routes.

3.0 Provide multi-modal connections that link neighborhoods with commercial areas, schools, parks and greenways.

4.0 Increase the visual identity of the Regional Center Area through streetscape improvements including pedestrian zones, landscaped strips between streets and sidewalks, lighting, street trees, landscaped medians, and gateways.

5.0 Protect natural features by directing development away from these areas and using remaining land more efficiently.

6.0 Provide public or private street layouts that support future development and increase connectivity for all modes of transportation.

7.0 The Urban Design Elements shown on X -CRC-3 shall be provided in the Clackamas Regional Center Design Plan Area as development occurs and public improvements are provided.

1.1 All new development or major modifications to existing approved development shall provide the design elements on Map X-CRC-3.

1.2 For phased development, urban design requirements will generally be roughly proportional to the amount of development occurring in a phase.

1.3 Key urban design elements shown on Map X-CRC-3 are defined as follows:

a. Boulevards: Streets characterized by landscaped medians and other pedestrian crossing improvements, a sidewalk separated from the street by planting strips and street trees, and bike lanes.

b. Main Streets: Streets characterized by a pedestrian/furnishing zone that includes sidewalks, street trees, and space for street lights and other furnishings, on-street parking, more frequent pedestrian crossings, and buildings oriented to the street with storefronts close to the sidewalk.

c. Special Street Standards: Streets that are characterized by a landscaped planting strip separating the sidewalk from the curb, pedestrian lighting, and pedestrian amenities.

d. Street Connections: General locations for new or enhanced street connections to improve connectivity in the area have been identified on Map X-CRC-3. Street connections may be public or private streets and in some cases line up with important driveways to commercial areas.

e. Local Street Grid: An interconnected public or private street system that provides multi-modal access to all activities and uses.

f. Off-street Pedestrian Linkages: Street, bicycle and pedestrian paths, and greenway paths to link parks, civic spaces, retail centers, neighborhoods, and other points of interest.

g. Multi-Use Paths: Off-street pedestrian and bicycle paths. These paths may be developed primarily as a

transportation facility, as an amenity, or may serve multiple purposes.

h. Parks and Open Space: The general locations of parks needed in the Clackamas Regional Center Design Plan area are shown on the Map X-CRC-3. Park locations are not site-specific.

i. Greenway Trails: Off-street trails within designated greenways (e.g. Phillips Creek and Mt. Scott Creek) that provide opportunities for environmental restoration, recreation and education.

j. Plazas: Public gathering places are typically one acre or less and may be publicly or privately owned. Plazas are intended as public gathering places and community focal points.

k. Natural Features: Natural features to be protected include creeks, wetlands, steep slopes and wooded bluffs.

a. Gateways: Key intersections to be reconstructed with special design and landscape treatments that are intended to provide a visual announcement that people are entering a special area.

8.0 Establish though zoning Transit Oriented Design Standards to assure that streets and buildings are supportive of pedestrian, bicycle, and transit trips.

VII. STREETS AND GATEWAYS

1.0 Establish design and dimensional standards that provide pedestrian oriented streets and buildings.

2.0 2.0Design and dimensional standards for streets and gateways are intended to:

a. Improve pedestrian safety at crossings.

b. Improve visual appeal of the streets.

c. Improve the pedestrian environment along sidewalks.

d. Provide on-street parking where appropriate to help provide a supply of public parking that supports reduced parking standards

on private property, and separate pedestrians from auto traffic.

e. Provide strong visual identity to distinguish the Regional Center from adjacent areas.

f. Create a local block pattern for new roads to improve circulation for motor vehicles and pedestrians by providing shorter and more direct connections between uses.

3.0 Boulevards, Main Streets, Gateways, and streets planned for Special Street Standards have been identified on Map X-CRC-3. Figures X-CRC-1through X-CRC-7 illustrate the intended standards for improvement.

1.1 Exceptions to these standards may be allowed subject to topography, environmental constraints, available right of way, safety considerations, and as follows:

a. General elements of a gateway intersection are illustrated in Figures X-CRC-1 and X-CRC-7. Establish specific requirements through design.

b. Elements of the Main Street cross section may be modified to accommodate Light Rail Transit alignment.

1.2 When developing Boulevard improvements, the County should develop and implement a strategy to minimize adverse impacts to adjacent businesses.

3.0 New public and private streets should be designed to accommodate future development. **Deleted:** 4

4.0 Encourage retention and development of a local street network as shown on Map X-CRC-4, and as otherwise required in the Clackamas Regional Center Design Plan. **Deleted:** 5

5.0 Require new streets to connect uses within a development and to adjacent property, when applicable. **Deleted:** 6

6.0 Allow new buildings to be oriented to private streets when these streets include sidewalks or raised walking surfaces, curbs, pedestrian scale street lighting and street trees. **Deleted:** 7

VIII. PARKS, PLAZAS, CIVIC SPACES, OPEN SPACE, PATHS AND LINKAGES

1.0 Add parks and enhance open space to meet community needs in the general locations shown on Map X-CRC-3. Coordinate park and open space efforts with the North Clackamas Parks and Recreation District. Provide additional parks as follows:

- *Golf Course Area Park*
- *Windmill Area Park*
- *Northeast Area Park*
- *Fuller Area Park*
- *Springwater Area Park*
- *Overland Area Park*
- *Bell Area Park*
- *Causey Area Park*
- *Price-Fuller Area Park*

2.0 Provide plazas at the general locations shown on Map X-CRC-3, as well as at major transit stops and stations, in high intensity pedestrian areas, and near major employment facilities.

3.0 Provide off-street pedestrian linkages at key locations to connect residential areas, parks, and major employment areas and attractions.

4.0 Protect natural features such as wetlands, forested areas and riparian habitat.

5.0 Conduct a feasibility study of the need for a multipurpose community/cultural facility. The study should be coordinated with the County Tourism Development Council and area business groups.

IX. PHILLIPS CREEK GREENWAY

1.0 Work with the North Clackamas Park District, public agencies, the private sector and the community to implement the Phillips Creek Greenway Framework Plan, adopted by reference.

X. URBAN DESIGN STANDARDS

1.0 Urban design standards shall be implemented to meet the goals of the Clackamas Regional Center Design Plan through standards in the Zoning and Development Ordinance.

1.1 All new buildings in the Clackamas Regional Center shall be oriented to existing or new private or public streets.

1.2 Maximum front yard setbacks with pedestrian amenities are required in the Regional Center to further develop a high quality pedestrian environment.

1.3 Buildings on corner lots are encouraged to have entrances at the corner.

1.4 When feasible and practical, buildings shall be placed to allow future infill and intensification of the site.

1.5 Pedestrian amenities, as defined by the Zoning and Development Ordinance, may be used to satisfy specific percentages of landscape requirements.

1.6 Where appropriate, the County may allow developments to utilize regional storm water facilities and/or for multiple property owners to utilize joint facilities.

1.7 Drive-through facilities may be prohibited, limited or conditioned to support the goal of creating high quality pedestrian environments.

1.8 Architectural design shall support and promote urban character.

TRANSPORTATION POLICIES

XI. ROADS AND STREETS SYSTEM POLICIES

1.0 Construct all roadway improvements identified in Map X-CRC-4 to maintain regional accessibility to the Regional Center and provide a network for all transportation modes that interconnects neighborhoods and districts, commercial areas, community centers, parks, libraries, and employment places, other major activities, off-street pedestrian linkages, regional multi-use paths, and area Greenway trails.

2.0 Street Connectivity Policies

1.1 Develop a block and grid street network that serves all transportation modes with short and direct public right-of-way routes.

1.2 In all new developments adjacent to corridor arterial streets, require public or private street, or private driveway connections to provide traffic flow parallel to the arterial.

1.3 On major arterial streets, encourage public or private street connections at intervals of no more than 660'. Encourage more frequent public or private connections on other streets, especially those in areas planned for mixed-use or dense development.

1.4 To reduce the number of local trips using 82nd Avenue, require and develop local street and commercial driveway connections on the east side of 82nd Avenue from Causey Blvd. to Otty Road. These public or private connections shall be open to public access, and may be indirect if appropriate direct routes are not feasible. This policy applies to all land use, transportation and development permits.

3.0 Require public local streets, private streets, and driveway connections between developments to provide public access and circulation between land uses and reduce local trips on collectors and arterials. This policy applies to all land use, transportation and development permits.

4.0 Transit Oriented Street Network: In the Station Community, a network of public and private streets, including arterial, collector and local streets, will provide excellent connectivity and pedestrian access to support transit access and utilization. Generally blocks will be no more than 400 feet in length.

5.0 Core Traffic Streets: In the Station Community, a network of core traffic streets will provide the connectivity and capacity needed to transport vehicle through and within the area.

6.0 Congestion Performance Standards for portions of 82nd Avenue, Sunnyside Road and Johnson Creek Boulevard located within the Regional Center and Station Community boundaries shall be as follows:

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CONGESTION PERFORMANCE STANDARDS (Level of Service)

	Preferred Operating Standard	Acceptable Operating Standard	Exceeds Deficiency Threshold
Mid-Day one-hour	C or better	E	F or worse
Peak two-hour	E first hour E second hour	F first hour E second hour	F first hour F second hour

7.0 Congestion Performance Standards for portions of 82nd Avenue, Sunnyside Road and Johnson Creek Boulevard located within the Clackamas Regional Center Design Plan Area and outside the Regional Center boundary shall be as follows:

CONGESTION PERFORMANCE STANDARDS (Level of Service)

	Preferred Operating Standard	Acceptable Operating Standard	Exceeds Deficiency Threshold

Mid-Day one-hour	C or better	D	E or worse
Peak two-hour	E first hour D second hour	E first hour E second hour	F first hour E second hour

8.0 Monitor transportation conditions in the SE 82nd Avenue Corridor to determine if Comprehensive Plan strategies are contributing to the attainment of congestion performance standards as identified in Policy 4.0 and 5.0 above.

9.0 Provide for roadway and infrastructure improvements sufficient to support minimum planned development intensity and density.

7.1 The Regional Center Plan includes transportation and infrastructure planning that identifies certain needed roadway and infrastructure improvements necessary to support future development in the Regional Center.

7.2 These improvements, in conjunction with frontage improvements normally and legally exacted concurrent with development, are sufficient to support the minimum planned development intensity and density within the Regional Center. Developers in the Regional Center are entitled to rely on the improvements that are listed as funded in the Five (5) Year Capital Improvement Plan, as if they are already in place when submitting a master plan at the minimum densities and for approval of each phase of a multi-phase development project.

7.3 Amendments to the Comprehensive Plan or Zoning Ordinance or changes in the Comprehensive Plan Map or zoning designation for the property within the Regional Center shall not be authorized unless it is demonstrated that the improvements described in Policy 7.1 and 7.2 will remain adequate to support planned development intensity and density for the Regional Center.

I. TRANSIT POLICIES

1.0 Coordinate with Tri-Met to implement Clackamas Regional Center Design Area transit service improvements planned in the Tri-Met Primary Transit Network and Tri-Met Choices for Livability, and implement additional transit improvements identified on Map X-CRC-6.

2.0 Coordinate with Tri-Met, Metro, ODOT, and other agencies in funding and implementing the planned Clackamas Regional Center Design Plan Area transportation improvements identified on Map X-CRC-6.

3.0 Coordinate with Tri-Met to implement Light Rail Transit (LRT) service to the Clackamas Regional Center area.

4.0 Coordinate with Tri-Met in evaluating a fareless square for the Clackamas Regional Center Design Plan Area.

5.0 Coordinate with a Transportation Management Association (TMA) to develop and operate a frequent, fareless or low fare Loop Shuttle Service. A conceptual alignment for the shuttle service is indicated on Map X-CRC-6; the actual alignment is to be determined by Tri-Met and the TMA.

6.0 Establish park and ride lots at the periphery of the Clackamas Regional Center. Future shuttle bus routes should include stops at potential park and ride sites and employer locations.

7.0 To improve transit speed and the capacity of 82nd Avenue, add bus queue by-pass lanes which allow busses to by-pass auto traffic at traffic signals.

8.0 Coordinate with Tri-Met to encourage and support development of structured Park and Ride lots at high capacity transit stations. When surface parking facilities are provided, encourage Tri-Met to re-use these sites for Transit Oriented Development.

XIII. PEDESTRIAN AND BIKEWAY NETWORK POLICIES

1.0 Construct all walkway and bikeway improvements identified in Maps X-CRC-3 and X-CRC-7 to provide a network connecting Clackamas Regional Center Design Plan area neighborhoods and districts with transit stops, commercial areas, community centers, parks, libraries, and employment places, other major activities, off-street pedestrian linkages, regional multi-use paths, and area greenway trails. Other local sidewalks, walkways and bikeways may be identified and developed during land use review and as part of public improvements.

2.0 In the development review process, new residential and mixed use developments within the Corridor and Regional Center shall encourage pedestrian and bicycle travel by:

1.1 Providing direct and convenient public right-of-way routes connecting residential uses with planned commercial uses, schools, parks, and other neighborhood facilities.

1.2 Providing bike and pedestrian connections on public easements or right-of-way when full street connections are not possible, with connection spacing no more than 330' except where topography, barriers such as freeways, railroads, or environmental constraints such as streams, rivers, slopes, or environmentally sensitive areas prevent street extension.

3.0 Sidewalks shall be constructed on all public and private streets in the Clackamas Regional Center Design Plan Area, subject to topography and environmental constraints.

II. TRANSPORTATION DEMAND MANAGEMENT (TDM)

1.0 Work with Clackamas Regional Center Design Area employers and businesses to develop strategies that will reduce vehicle miles traveled to decrease congestion and improve air quality. Strategies to be considered include but are not limited to the following:

1.1 Employer strategies that increase vehicle occupancy, encourage work trips outside peak travel times, and promote telecommuting.

1.2 Facilities Improvements to encourage non-auto transportation modes which include building the area bike/pedestrian network, transit preference systems that give buses advantage over other vehicles, transit and pedestrian amenities such as covered bus stops and lighting, on-site shower and dressing areas.

1.3 Identify County resources and incentives needed to promote and develop TDM programs for 82nd Avenue employers, and monitor the performance of 82nd Avenue corridor TDM programs conducted by employers.

1.0 Develop a Transportation Management Association (TMA) with businesses within the Regional Center Design Plan Area and Tri-Met to manage TDM strategies and operate a Loop Shuttle Service.

1.0 Work with employers and businesses within the Regional Center Boundary and other targeted TDM areas to initiate a Transportation Management Association (TMA) to manage area TDM strategies and operate a Loop Shuttle Service.

XV. ACCESS MANAGEMENT

1.0 Implement the following access management standards on 82nd Avenue within the Clackamas Regional Center Design Plan Area.

1.1 Consolidate driveways/accesses to the targets shown on Map X-CRC-8.

1.2 Reduce signal spacing requirements from 1,320' to 500', contingent on maintaining adequate signal progression.

1.3 Coordinate with ODOT to reassess 82nd Ave. Access Management Standards if the balance of efficient traffic flow with local access needs change as adjacent land uses develop to the Corridor and Boulevard Designs.

2.0 Develop Clackamas Regional Center Design Area Access Management Standards for the other areas of the Clackamas Regional Center Design Plan Area that:

2.1 Require driveway/access spacing to support the County functional classification of the road.

2.2 Require new driveways/accesses to line up with driveways/accesses or public streets on the opposite side of the Corridor to promote safety and efficient access and egress.

2.3 Encourage shared driveways/accesses with adjacent properties to meet minimum driveway access spacing standard that support the functional classification of the road.

2.4 Encourage connecting driveways/accesses with adjacent properties.

2.5 Require developments to provide rear access to public streets whenever feasible.

3.0 Other than the new public street access identified in Map X-CRC-8, do not allow additional access on Johnson Creek Boulevard between 82nd Avenue and I-205.

I. PARKING

Deleted: STANDARDS

1.0 Encourage more efficient land use, promote non-auto trips and improve air quality within the Clackamas Regional Center Design Plan Area by establishing, by zoning, minimum and maximum parking ratios.

1.0 Encourage parking on all local and collector street classifications to provide a buffer between pedestrians and vehicle traffic, and provide public shared parking.

2.0 In Station Communities, locate parking lots to the side and behind buildings, with building entrances oriented to the street.

3.0 In Station Communities, require shared public parking on all public and private streets shown on the Transit Oriented Development street network.

HOUSING

II. HOUSING POLICIES

In addition to the policies in Chapter 4 of the Comprehensive Plan, the following policies apply to the Clackamas Regional Center Design Plan Area:

1.0 Provide for a range and variety of housing types (size and density) and variety of ownership and rental opportunities, in a range of prices.

2.0 Encourage housing opportunities for employees in the Clackamas Regional Center Design Plan Area. by investigating partnerships to develop housing for workers in the area.

3.0 Limit expansion of commercial zoning into residential neighborhoods along the 82nd Avenue corridor.

4.0 Preserve existing mobile home parks by requiring a relocation plan to be developed and implemented by the developer for residents of mobile home parks whenever the zone designation on a mobile home park is changed to a zone other than MR-1. The County must approve the relocation plan as part of the zone change application.

5.0 Replace housing capacity lost in the study area by future Comprehensive Plan or zone changes. Any application for a change in Comprehensive plan designation within the Clackamas Regional Center Design Plan Area will be accompanied by a demonstration of how an equal amount of housing capacity is replaced on another site, or constructed on the site as part of a mixed use development.

5.1 The purpose of this policy is to maintain the potential for the amount of housing identified in the Clackamas Regional Center Area Plan.

5.2 This policy would apply to plan or zone changes made subsequent to adoption of the Clackamas Regional Center Area Plan.

5.3 This policy would apply to quasi-judicial changes from residential to a non-residential use.

5.4 Replacement housing capacity could be located anywhere within unincorporated Clackamas County located within the Urban Growth Boundary.

1.1 Approval of a design review application and any other applicable land use permit for the required amount of replacement housing on a site in a commercial or office district, not including PMU sites, will meet the requirements of policy 5.0.

6.0 Form a County Housing Advisory Committee to counsel and advise the Board of County Commissioners on housing issues.

6.1. Clackamas County shall review its policies and ordinances regarding affordable housing and develop an affordable housing strategy with a series of tools to provide for a mix of housing types and prices in the County.

Map CRC-1	Clackamas Regional Center Area Design Plan, Regional Center and Corridors
Map CRC-2	Clackamas Regional Center Area Design PlanComp Plan Designations
Map CRC-3	Clackamas Regional Center Area Design Plan, Urban Design Elements
Map CRC-4	Clackamas Regional Center Area Design Plan, Transportation network
Map CRC-5	Clackamas Regional Center Area Design Plan, Functional Classification
Map CRC-6	CRC , Transit Network
Map CRC-7	CRC, Bikeway and Path Network
Map CRC-8	Clackamas Regional Center Area Design Plan, 82nd Avenue Access Management Targets
Figure X-CRC1	Clackamas Regional Center Area Design Plan, Regional Boulevard, GATEWAY INTERSECTIONS
Figure X-CRC-2	Clackamas Regional Center Area Design Plan, Regional Boulevard, BETWEEN GATEWAY INTERSECTIONS
Figure X-CRC-3	Clackamas Regional Center Area Design Plan, SUNNYSIDE RD
Figure X-CRC-4	Clackamas Regional Center Area Design Plan, HARMONY RD REGIONAL BOULEVARD
Figure X-CRC-5	Clackamas Regional Center Area Design Plan, MONTEREY AVENUE MAIN ST
Figure X-CRC-6	Clackamas Regional Center Area Design Plan CAUSEY AVENUE MAIN ST
Figure X-CRC-7	Clackamas Regional Center Area Design Plan GATEWAY INTERSECTION

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DRAFT TECHNICAL MEMORANDUM

DATE: April 13, 2007

TO: Maggie Dickerson, Clackamas County
Sonya Kazen, ODOT

FROM: Alan Snook, AICP
Jeremy Wheeler

SUBJECT: **Fuller Road Station Area Plan**
Future Transportation Analysis P06097-203-005

This memorandum provides an analysis of the future transportation conditions within the study area for the Fuller Road Station Area Plan. This memorandum builds upon a previous analysis, which evaluated the existing transportation conditions within the study area.[1] There are two land use alternatives that have been identified for analysis within the study area. The future operations for alternatives are compared to a No-build scenario for the analysis year 2030. The No-build scenario assumes no land use changes within the study area, and provides a benchmark for the future transportation impact analysis.

EXECUTIVE SUMMARY

There are two land use alternatives that have been identified for the study area; Alternative 1 and Alternative 2. These alternatives provide a mixed-use environment, which include commercial, institutional, office and residential land uses. The future traffic operations have been compared between Alternatives 1 and 2 and the No-build scenario. The analysis reveals that both alternatives have a lower trip making potential than the No-build scenario. However, the difference in trips between No-build and Alternative 1 would be 300 (less in Alternative 1), while Alternative 2 would generate approximately 1,355 fewer trips than the No-build scenario.

The operations analysis also reveals that Alternative 1 has the same operational deficiencies as the No-build scenario. However, Alternative 1 would significantly impact the intersections of SE 92nd Avenue/SE Johnson Creek Boulevard and 92nd Avenue/SE Otty Road.

[1] *Fuller Road Station Area Plan Existing Transportation Conditions*, DKS Associates, Inc., November 2006.

There are only two intersections that would operate below jurisdictional standards in Alternative 2 (SE 82nd Avenue/SE Johnson Creek Boulevard and SE 92nd Avenue/SE Otty Road). These two intersections would operate better in Alternative 2 than in the No-build scenario, and therefore not require mitigation.

Since Alternative 1 has intersections that do not meet jurisdictional standards, and operate worse than the No-build scenario, these intersections would require mitigation to bring operations back to levels that are equivalent or better than the No-build scenario. Potential mitigation measures for intersections that are impacted in Alternative 1 are as follows:

SE 92nd Avenue/SE Johnson Creek Boulevard

- Add an additional northbound left turn lane with 200 feet of vehicle storage for both northbound left turn lanes.

SE 92nd Avenue/SE Otty Road

- Add a northbound right turn lane with 50 feet of vehicle storage and adjust the cycle length of the traffic signal from 60 seconds to 90 seconds.

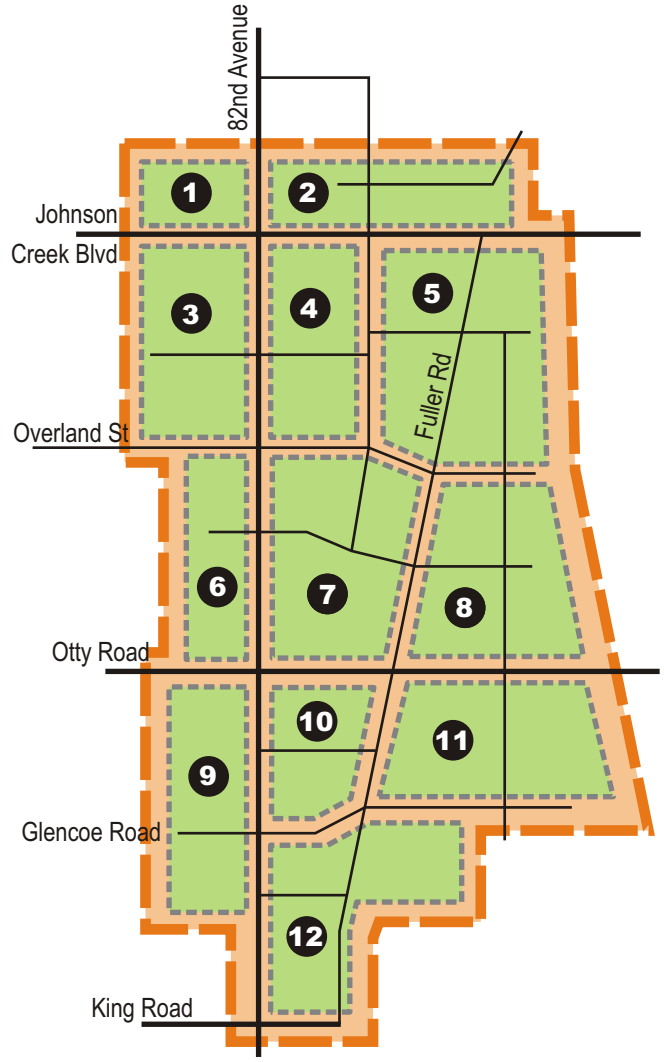
ASSUMPTIONS AND METHODOLOGY

The following section summarizes the assumptions and methodology used for the future assessment of transportation operations for the No-build, and Alternatives 1 and 2. Items covered include study areas, land use, trip generation, trip distribution and future forecasting.

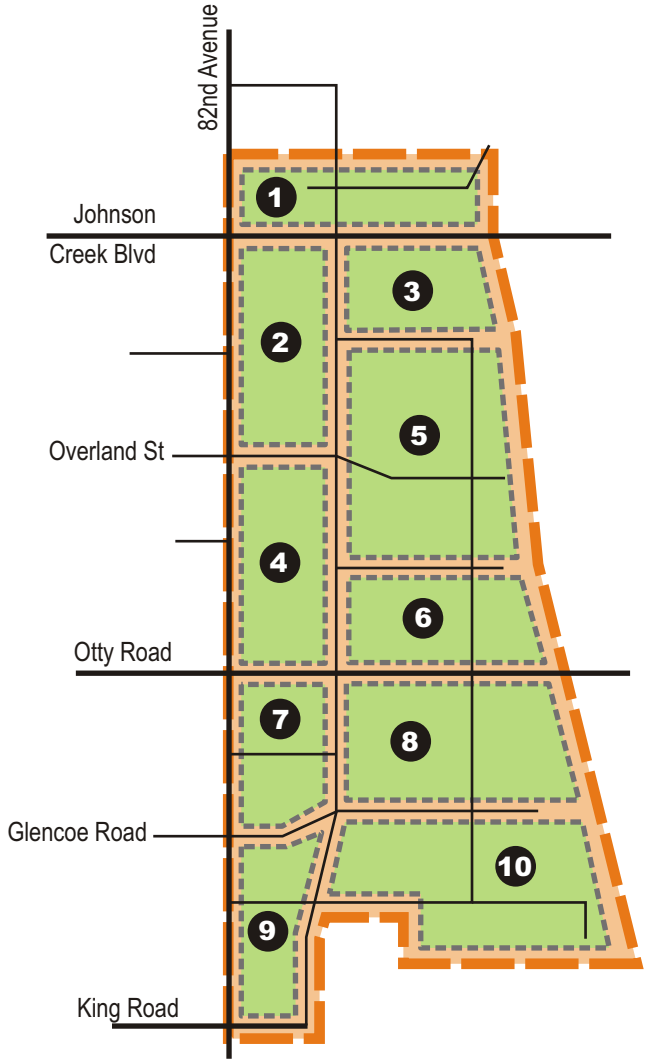
Study Area and Project Overview

The two land use alternatives provide a mixed-use environment focused on establishing a transit-oriented environment by combining a variety of land uses that are located near the future light rail transit station and park-and-ride at SE Fuller Road. Two major transit corridors are adjacent to the study area; 82nd Avenue and the future I-205 Max light rail alignment. A future transit park-and-ride is also included in all future scenarios. Figure 1 shows the boundaries that define Alternatives 1 and 2, and the sub-areas for land use within each alternative.

Alternative 1



Alternative 2



LEGEND

- Study Area Boundary
- Sub-area Location
- # - Sub-area Number

N

MAP NOT TO SCALE

Information Sources: David Evans & Associates
Urbsworks

DKS Associates

POTENTIAL ROADWAY CONNECTIONS AND SUB-AREAS FOR ALTERNATIVES 1 & 2

FIGURE 1

Land Use

A variety of land uses were developed for both alternatives. The focus of the land uses were aimed at creating a higher level of density than exists today and a transit oriented development that helps to support the concept of providing a place that people could both work and live. Table 1 summarizes the land use assumed in both Alternative 1 and 2.

Table 1: Land Use Summary for Alternatives 1 and 2

Land Use	Alternative 1	Alternative 2
Office/Institutional	727,200 sq. ft.	172,800 sq. ft.
Commercial	607,950 sq. ft.	478,050 sq. ft.
Housing	746 dwelling units	233 dwelling units

Source: David Evans & Associates

Trip Generation

Three different trip generation estimates were calculated for the future analysis; No-build, Alternative 1 and Alternative 2. Trip generation estimates are based on survey data found in the Institute of Transportation Engineers (ITE) Trip Generation Manual.[2] Trip rates were selected and applied to the number of dwelling units and square footages based on land use categories to estimate total PM peak hour trips.

As part of the trip generation, a reconnaissance of the study area was conducted to determine the existing land uses and building square footages within the boundaries of the proposed alternative sub-areas. This was done for comparison against the alternatives because most of the study area is built out utilizing current comprehensive plan zoning, and therefore would represent a future baseline for comparison. The proposed Alternative 1 and Alternative 2 sub-areas are defined by differing boundaries, and therefore, two No-build vehicle trip generation estimates were calculated. These estimates use ITE[2] rates to calculate the vehicle trips that would be generated by the No-build and alternatives.

The proposed alternatives have similar land uses, however, due to the different study boundaries the proposed square footages within each alternative are slightly different. Trip generation estimates were calculated for each alternative, and account for the difference in development sizes. In addition, adjacent parcels within each study area were combined to form defined sub-groups. The trip generation estimates are based on the aggregate building square footage within each sub-group. This was done to help group similar land uses for trip generation calculations. The trip generation estimates for the proposed alternatives were then calculated based on ITE[2] rates.

Pass-by trips were accounted for, and an internal trip reduction was included in the trip generation estimates. Pass-by trips include trips that currently are on the existing roadway network, and are adjacent to the proposed land uses. These trips would not represent "new"

[2] *Trip Generation (7th Edition),* Institute of Transportation Engineers, 2003.

motor vehicle trips on the roadway system, but rather reallocated existing trips. These trips then should be reduced from the new trip making potential of the proposed alternatives. The internal trip reduction accounts for the trips that would be made internally due to the mixed-use nature of the proposed land use. Internal trips would not access the roadway network, and therefore, are discounted from the total number of trips generated by the proposed development. A goal of establishing a transit-oriented environment involves reducing the overall potential vehicle trips within an area. The future alternative trip generation estimates were compared to the No-build scenario to determine if the proposed alternatives would generate more or less trips. Table 2 summarizes this trip generation comparison.

Table 2: Trip Generation Comparison by Land Use Alternative

	PM Peak Hour Motor Vehicle Trips			
Land Use	**No-Build (Alternative 1 Boundary)**	**Alternative 1**	**No-Build (Alternative 2 Boundary)**	**Alternative 2**
Commercial/Retail	4,375	1,715	3,445	1,360
Housing	50	285	260	90
Office/*Institutional	-	1,545	-	340
**Other	500	440	500	440
Subtotal	**4,925**	**3,985**	**4,205**	**2,230**
Trip Reduction				
***Pass-By (5-50%)	965	160	750	130
Internal (%)	110	275	85	85
Existing/Net New Trips	**3,850**	**3,550**	**3,370**	**2,015**

* Office trip generation rates were used for institutional land use. These rates would represent a worst case for various institutional land uses.
** This land use category includes existing land uses such as light industrial, and also the future park-and-ride, which is assumed in each future scenario.
*** The percentage of pass-by trips varies by land use. Specialty retail uses were assumed to have an approximate 5% pass-by trip reduction, while fast food establishments were assumed to have approximately 50% pass-by trips. These percentages are based on data found in the ITE Trip Generation Manual.

Table 2 shows that Alternatives 1 and 2 would generate less motor vehicle trips than the No-build alternative during the PM peak hour. Alternative 2 would generate less trips than Alternative 1 due to a smaller land use area, and because it has significantly less office and institutional uses. Alternative 2 would also have a greater impact than Alternative 1 on overall trip reducing potential. Alternative 2 would generate approximately 1,355 fewer trips than the No-build scenario, while Alternative 1 would generate approximately 300 fewer trips than the No-build scenario.

Trip Distribution/Assignment

Vehicle trip distribution was based on Metro's Regional Travel Demand Model. The output from the regional travel demand model was used to develop PM peak hour directional roadway volumes. Trip distribution percentages within the study area were developed based on the directional roadway volumes.

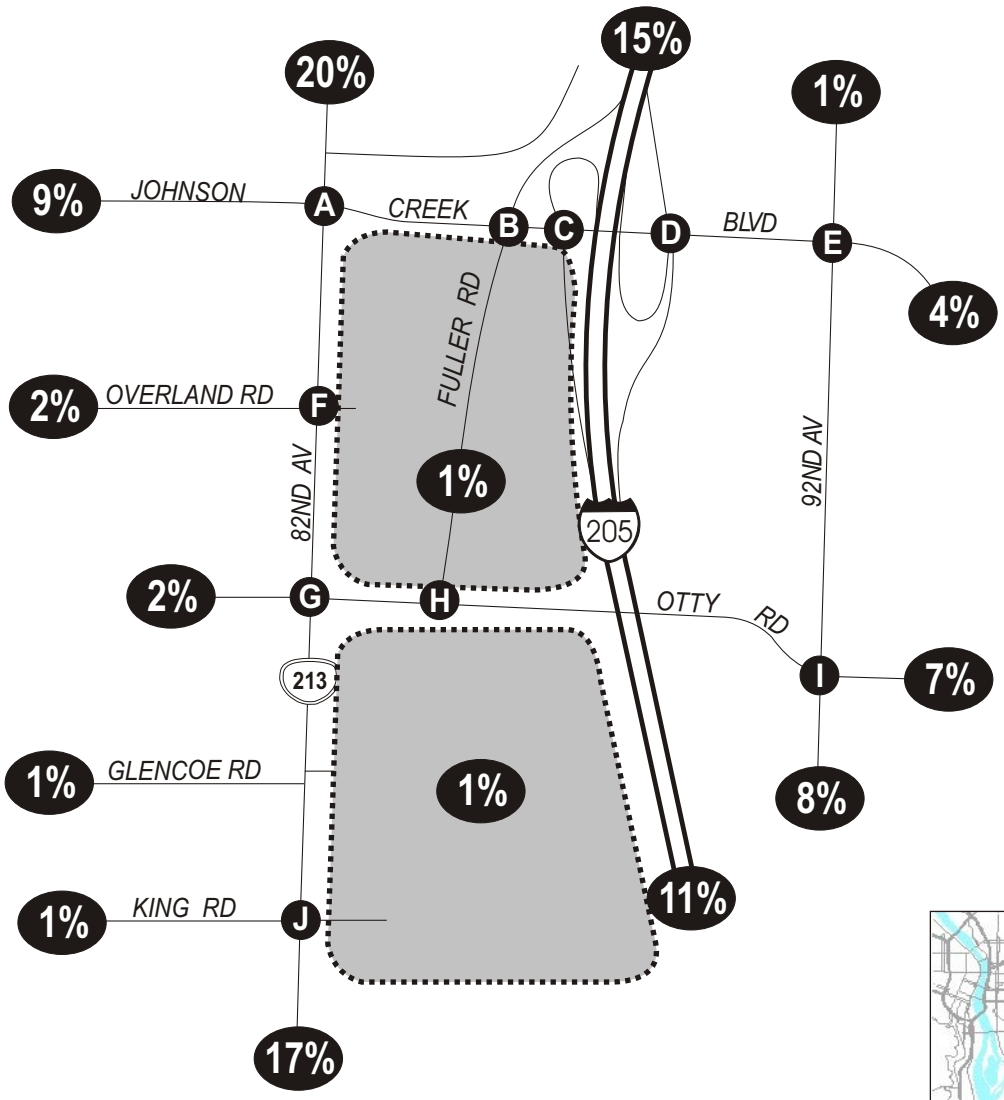
Figure 2 shows the trip distribution percentages in the vicinity of the study area. The majority of the traffic generated by developments within the study area will be on SE 82nd Avenue, SE Johnson Creek Boulevard, east of SE 82nd Avenue, and on SE Otty Road, east of SE 82nd Avenue. Each of the future scenarios share the same trip distribution, however, the trip generation varies, and therefore, the vehicle trips assigned to the roadway network and through study intersections will vary. Trips associated with existing comprehensive plan zoning within the areas for alternatives and 2 were subtracted from the No-build forecasts, so that trips generated for Alternatives 1 and 2 could be added back in respectively. This then allowed for future forecasts to be developed for Alternatives 1 and 2 without double counting the potential for trips associated with the existing comprehensive plan land use/zoning.

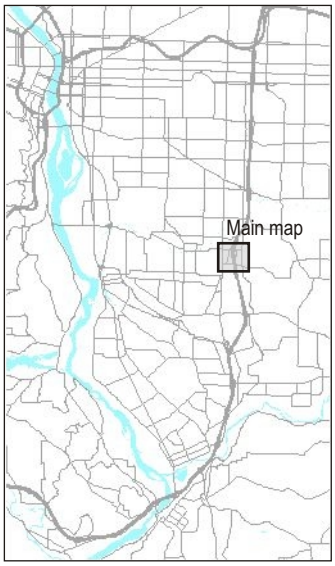
Forecasted Volumes

The 2030 PM peak hour travel demand forecast for the future No-build scenario was generated using Metro's Regional Travel Demand Forecast model. Future growth was derived from comparing the base (2005) and future (2030) models, and then applying that growth to the existing traffic count data to develop future traffic volumes at the study intersections. These future forecasted volumes were used to analyze future transportation conditions within the study area. This analysis provided a benchmark for comparison for trips generated in Alternatives 1 and 2

Methodology for Mitigation

It is important to establish a methodology for mitigation when evaluating and comparing future traffic operations of Alternative 1 and 2 to the No-build conditions. Typically traffic impact analysis for future operations must meet jurisdictional operating standards. For this study area that would require a V/C ratio of 0.99 on SE 82nd Avenue and the two I-205 intersections on SE Johnson Creek Boulevard, while all Clackamas County facilities would need to meet an LOS D condition. However, due to the fact that this is a land use/rezoning project, the proposed land use action (alternative) must meet the condition of not creating any impact beyond the No-build condition. Therefore, even if the No-build condition does not meet jurisdictional operating standards, and as long as the "build" alternative does not crate operational impacts beyond the levels found in the No-build condition there is no mitigation necessary. Otherwise mitigation must be implemented to bring the alternative back to levels at or below the No-build operations. Five types of scenarios exist for future operations, two of which would require mitigation. Figure 3 summarizes these scenarios.





LEGEND

X - Study Intersection

XX% - Trip Distribution Percentage

Fuller Road Station Area Plan

Figure 2

TRIP DISTRIBUTION

NO SCALE

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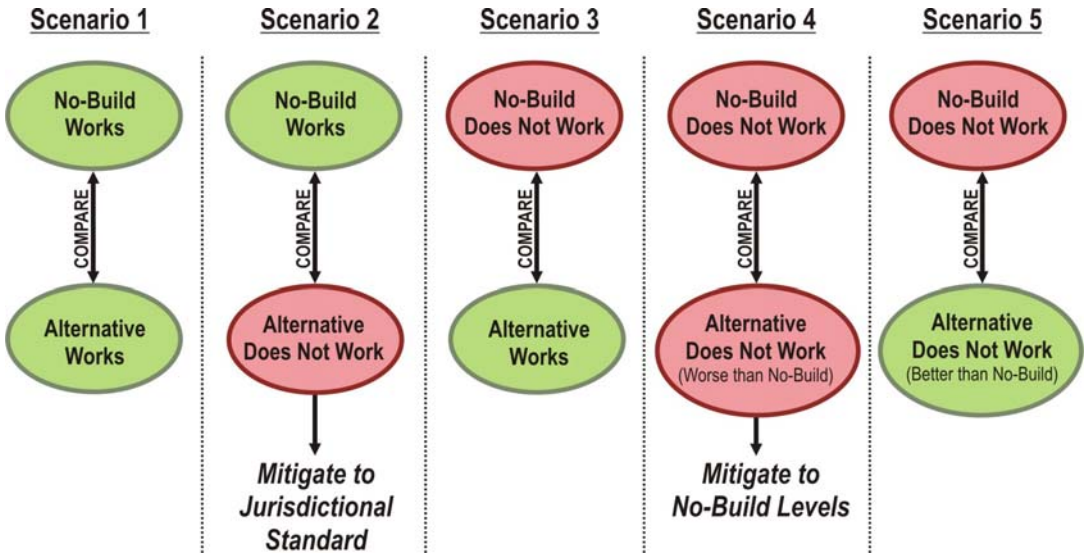
Figure 3: Mitigation Scenarios for Future Land Use Alternatives

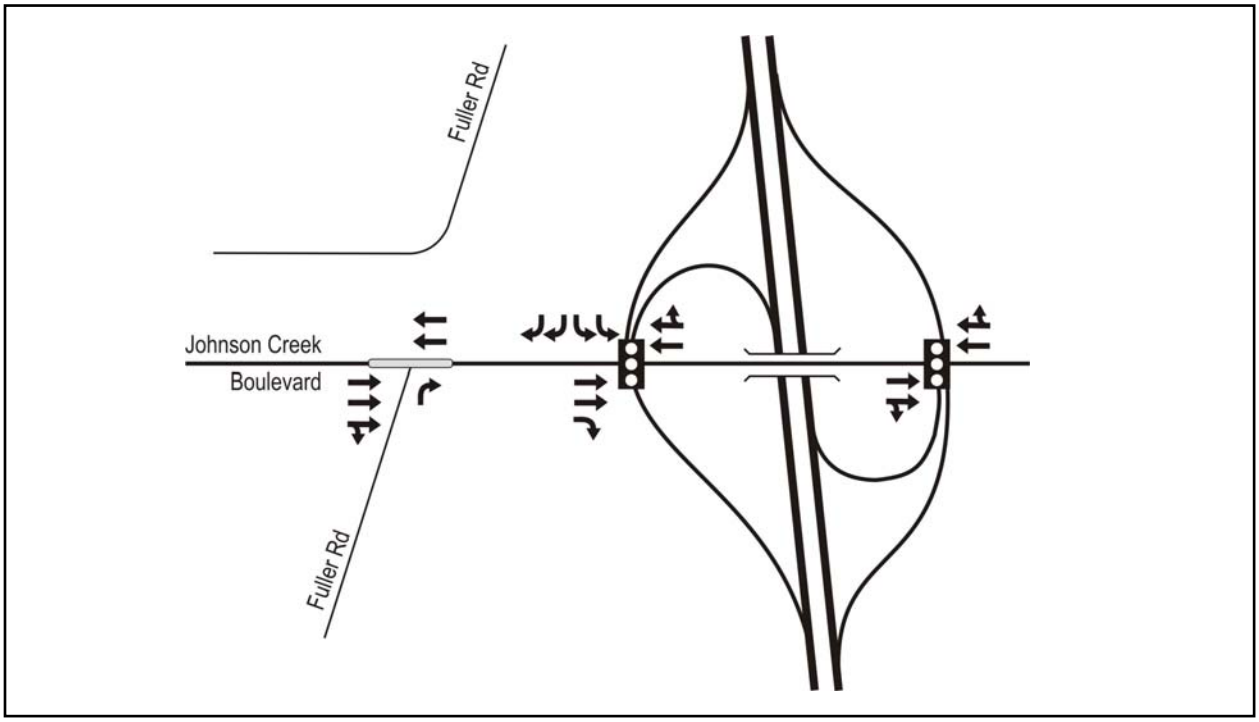


Future Roadway Network

There are several planned improvement projects within the study area. Key future improvements that affect motor vehicle circulation in the study area include the following:

- I-205 interchange improvements at SE Johnson Creek Boulevard;
- A new traffic signal at the SE 82nd Avenue/SE Glencoe Road intersection;
- The extension of SE Fuller Road south to SE King Road; and
- A new north-south collector west of SE 82nd Avenue from SE Glencoe Road to SE Otty Road.

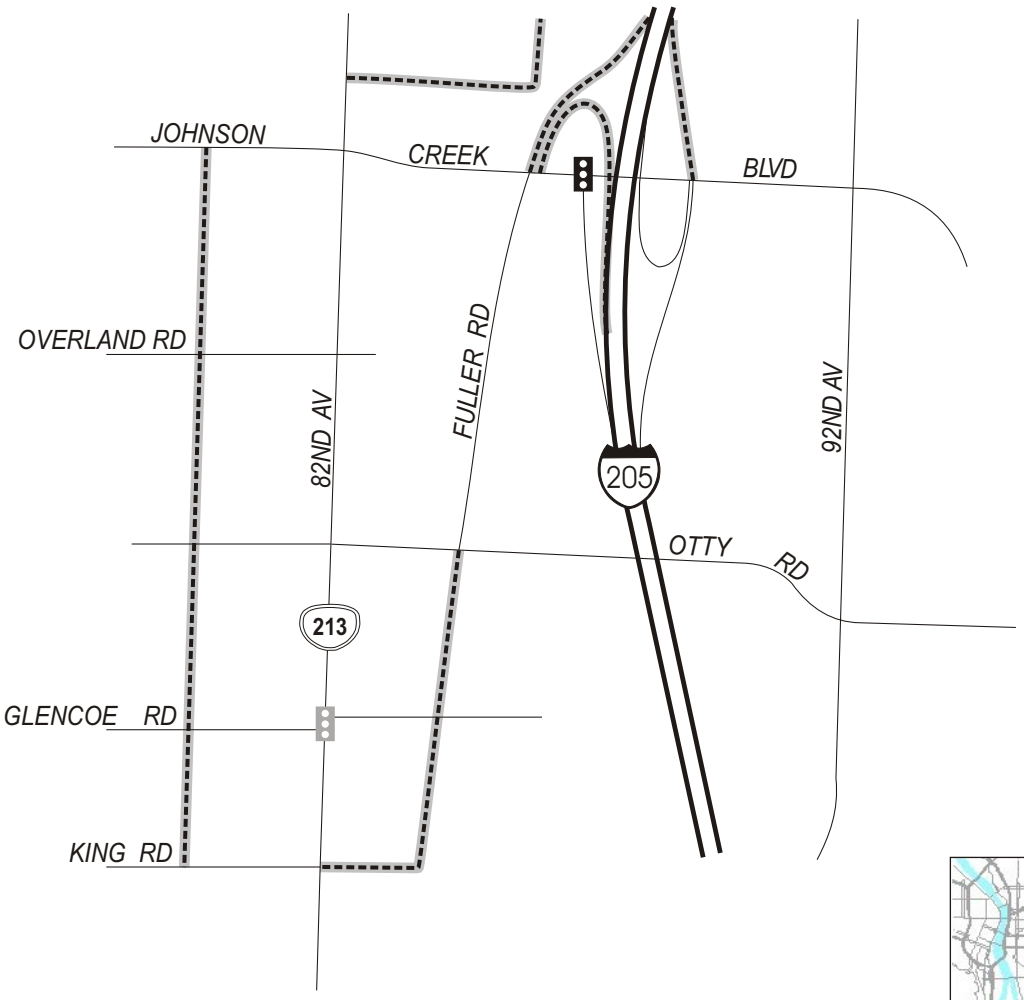
Improvements at the SE Johnson Creek Boulevard/I-205 interchange include realignment of the I-205 southbound off-ramp, removal of the existing traffic signal at the southbound off-ramp, the addition of a westbound to southbound loop ramp from SE Johnson Creek Boulevard to I-205 and the addition of a northbound on ramp. This improvement includes a median along SE Johnson Creek Boulevard restricting access to/from SE Fuller Road to right-in/right-out. The south leg of SE Fuller road would not be aligned with the future south bound off-ramp, and the north leg would be closed, restricting access to SE Johnson Creek Boulevard. See figure on the next page.

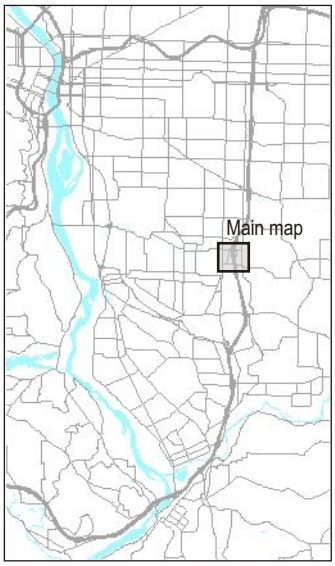


Alternatives 1 and 2 would provide interior connectivity with the addition of local access roads within the study area. However, it should be noted that the existing roadway network was used as a baseline network for the future transportation impacts analysis. The additional connectivity for motor vehicles called out in the alternatives (but not in local or regional plans) would be pursued as motor vehicle mitigation if intersection operations were failing and the additional connectivity would relieve the deficient intersections. A map of the planned improvement projects is shown in Figure 4.

FUTURE CONDITIONS

The future analysis evaluated transportation conditions within the study area for 2030 during the PM peak hour. The majority of the study area is currently built-out and is primarily retail in nature. A sub-area within the study area, which is bound by SE Johnson Creek Boulevard, SE Fuller Road, SE Otty Road and I-205 has mostly single-family home development, and has a low density. The nature of this sub-area does not coincide with general land use of the study area, and it is likely that this sub-area would be redeveloped within the near future. If land use Alternatives 1 and 2 were to be implemented, redevelopment of the entire study area would likely occur closer to the analysis year. It is important to note that if this occurred, impacts to the roadway system could be higher than the long term analysis shows due to the fact that lower trip intensive uses in other parts of the study area have not been implemented. The County and ODOT should take precautions in the short term to make sure that adverse traffic conditions and operations are not problematic and/or that adequate facilities are either in place, or can be implemented and are consistent with this planning effort and local/regional plans.





LEGEND

- New Traffic Signal
- Remove Existing Traffic Signal
- New Roadway Improvement

Fuller Road Station Area Plan

Figure 4

PLANNED IMPROVEMENT PROJECTS

NO SCALE

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Intersection Operations

The following section provides results of intersection capacity analysis for the three future scenarios. Level-of-service analysis was performed for each of these scenarios based on the *2000 Highway Capacity Manual* methodology for signalized intersections utilizing the previous outlined methodology and assumptions. Table 3 provides a comparison of intersection operations for the three future scenarios with intersections that do not meet acceptable intersection operations standards shown in grey shading.

Table 3: Intersection Capacity Analysis Comparison by Land Use Alternative

	2030 No-Build			2030 Alternative 1			2030 Alternative 2		
	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C
Study Intersections									
82nd Ave/Johnson Creek Blvd	133.2	F	1.34	119.7	F	1.27	102.0	F	1.14
82nd Ave/Overland St	21.7	C	0.87	17.8	B	0.90	11.5	B	0.79
82nd Ave/ Otty Rd	56.1	E	1.10	50.2	D	1.06	32.3	C	0.97
82nd Ave/Glencoe Rd	19.9	B	0.80	18.6	B	0.75	16.7	B	0.70
82nd Ave/King Rd	33.2	C	0.89	30.0	C	0.90	29.1	C	0.86
Fuller Rd/ Otty Rd	35.3	D	0.80	29.1	C	0.84	28.4	C	0.74
I-205 SB Ramp/Johnson Creek Blvd	18.8	B	0.85	18.9	B	0.85	17.9	B	0.80
I-205 NB Ramp/Johnson Creek Blvd	16.6	B	0.51	14.5	B	0.49	16.5	B	0.49
92nd Ave/Johnson Creek Blvd	84.5	F	1.01	94.0	F	1.03	50.3	D	0.97
92nd Ave/ Otty Rd	90.1	F	1.09	83.7	F	1.14	76.0	E	1.08

Notes:

LOS = Level of Service; A/A = major street LOS/minor street LOS
Delay = Average intersection delay in seconds for signalized intersections, and highest minor street approach delay for unsignalized intersections
V/C = Volume-to-capacity ratio

Table 3 shows that at least four study intersections would not meet acceptable intersection operations standards in the No-build scenario. In comparison, Alternative 1 has the same four intersections that do not meet jurisdictional standards. However, the intersections of SE 92nd Avenue with the SE Johnson Creek Boulevard and SE Otty Road have a higher level of impact to either the delay or V/C ratio in Alternative 1. While the jurisdictional standard at the two locations on SE 92nd Avenue would be the LOS (based on delay) the impact to the V/C ratio is still significant, especially since both intersections are forecasted to be over 1.0 in the future. In contrast, only two of the forecasted four deficient intersections are still deficient in Alternative 2, both of which show better intersection operations than the No-build indicating less impact and no mitigation necessary.

Queuing Analysis

A queuing analysis was conducted to evaluate where spillback or blocking queues would occur. The 95th percentile queues throughout the study area were calculated using Synchro. Figure 5 shows calculated 95th percentile queue lengths for each scenario during the PM peak period. Queue lengths that exceed the available vehicle storage are highlighted.

Figure 5 shows that several approaches would have queues that exceed the available storage under the future scenarios. Alternative 1 would have the most queuing deficiencies by analysis year 2030.

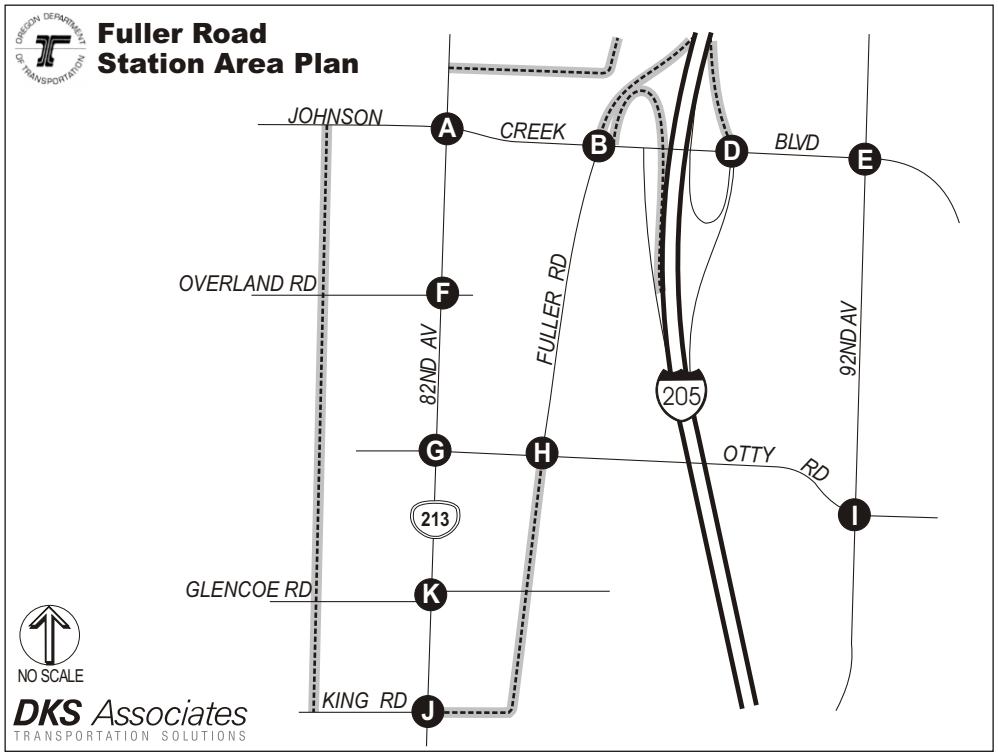
While the future analysis used the base network with identified financially feasible projects included in the network, the alternatives included potential modifications to the roadway network. These modifications to the roadway network were aimed at providing additional connectivity for circulation, but may be difficult to implement due to the potential queuing on the network. These potential modifications include the following:

- A future north-south connector road, which would intersect SE Johnson Creek Boulevard between SE 82nd Avenue and I-205, and would include a traffic signal at SE Johnson Creek Boulevard (assumed to be approximately 500 feet east of SE 82nd Avenue);

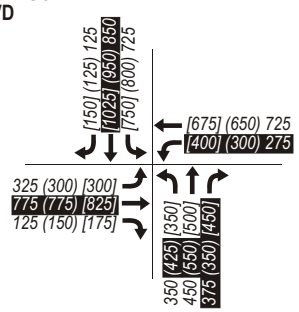
- A new traffic signal on SE 82nd Avenue between SE Johnson Creek Boulevard and SE Overland Road (assumed to be approximately 525 feet south of SE Johnson Creek Boulevard); and

- A new traffic signal on SE 82nd Avenue between SE Overland Road and SE Otty Road (assumed to be approximately 350 feet south of SE Overland Road).

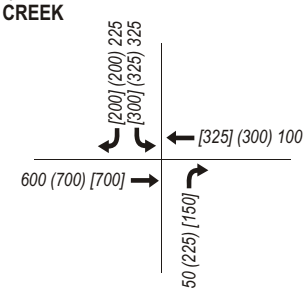
The queuing analysis show that westbound through queuing at SE 82nd Avenue/SE Johnson Creek Boulevard would spillback into the proposed signalized intersection on SE Johnson Creek Boulevard in each future scenario. Queuing at the northbound approach of SE 82nd Avenue/SE Johnson Creek Boulevard would spillback into the proposed signalized intersection on SE 82nd Avenue (between SE Johnson Creek Boulevard and SE Overland Road) only in Alternative 1. Queuing at the southbound approach of SE 82nd Avenue/SE Otty Road would spillback onto the future signalized intersection on SE 82nd Avenue (between SE Overland Road and SE Otty Road) in the No-build and Alternative 1 scenarios.



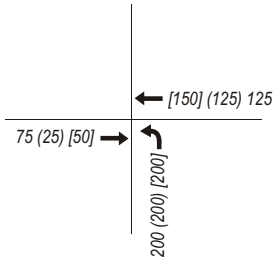
A 82ND AV/JOHNSON CREEK BLVD



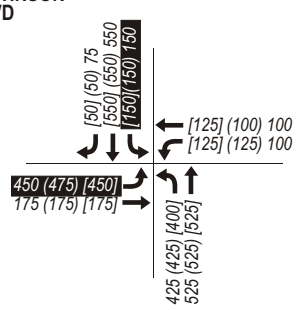
B FULLER RD/ JOHNSON CREEK BLVD



D I-205 NB ON-OFF RAMPS/JOHNSON CREEK BLVD



E 92ND AV/JOHNSON CREEK BLVD



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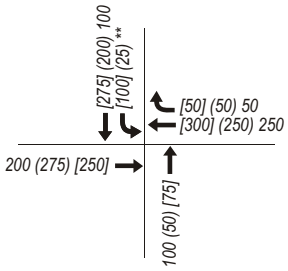

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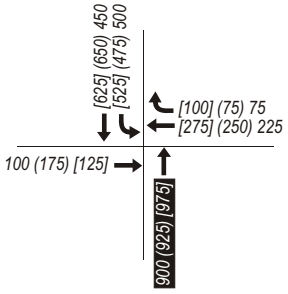
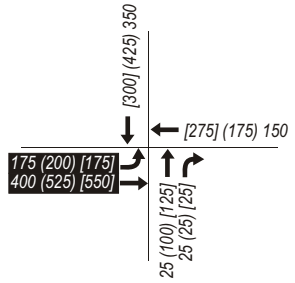


H FULLER RD/ OTTY RD



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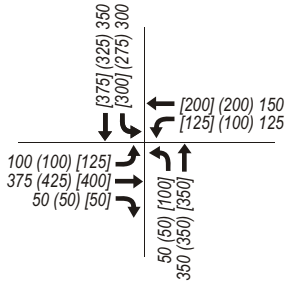
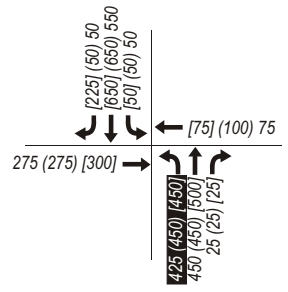


J 82ND AV/KING RD



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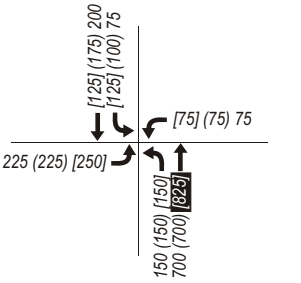

LEGEND

X - Study Intersection

- Signalized Intersection

Alternative 2 (Alternative 1) [No-build] - Peak Hour Queuing (ft.)

XXX - Queue Exceeds Available Storage

* * - No queuing

Information Sources:

- Synchro

Figure 5

STUDY AREA INTERSECTIONS 2030 PM PEAK HOUR QUEUING

Mitigation Strategies

Study intersections that do not meet operations standards, and degrade to levels worse than the No-build scenario would require mitigation measures to restore intersection operations back to No-build conditions or better. The results of the intersection capacity analysis (Table 2) show that SE 92nd Avenue/SE Otty Road and SE 92nd Avenue/SE Johnson Creek Boulevard intersections would require mitigation measures under Alternative 1. Intersection operations at study intersections would not degrade to levels below the No-build scenario under Alternative 2.

Potential mitigation measures have been identified for the intersections of SE 92nd Avenue/SE Otty Road and SE 92nd Avenue/SE Johnson Creek Boulevard under the Alternative 1 scenario. The potential mitigation measures are as follows:

SE 92nd Avenue/SE Johnson Creek Boulevard

- Add an additional northbound left turn lane with 200 feet of vehicle storage for both northbound left turn lanes

SE 92nd Avenue/SE Otty Road

- Add a northbound right turn lane with 50 feet of vehicle storage and adjust the cycle length of the traffic signal from 60 seconds to 90 seconds

The mitigation measure listed above would restore operation conditions to levels that are equivalent or better than the operation conditions under the No-build scenario. The operating conditions with potential mitigation measures in place are shown in Table 4.

Table 4: Land Use Alternative Intersection Operations with Mitigation

	2030 No-Build			2030 Alternative 1		
	Delay	LOS	V/C	Delay	LOS	V/C
Study Intersections						
92nd Ave/Johnson Creek Blvd	84.5	F	1.01	48.9	D	0.87
92nd Ave/Otty Road	90.1	F	1.09	49.1	D	0.90

The results in Table 4 show that operation conditions under Alternative 1 scenario would be restored to levels equivalent or better than operation conditions under the No-build scenario. In fact, the mitigation actually brings the intersections back to levels that meet jurisdictional standards.

Sensitivity Testing

In addition to the mitigation listed previously, sensitivity testing was also conducted to determine what additional mitigation would be needed to bring intersections that were deficient under the No-build scenario or alternatives to meet jurisdiction operational standards. It was determined that with the forecasted volumes for the PM peak hour, by 2030, the intersection of SE 82nd

Avenue/SE Johnson Creek Boulevard would be over capacity even under fully built-out geometric conditions (dual left turns, two through lanes and separate right turns on each approach). No feasible local mitigation was identified at this location. Other, more regional solutions may be necessary to mitigate this intersection. Mitigation at other locations was achievable and was the same between the No-build scenario and alternatives indicating minimal sensitivity between scenarios. The following mitigation would allow for adequate jurisdictional intersection operations at those deficient intersections:

SE 82nd Avenue/SE Otty Road

- Add a northbound right turn lane with 50 feet of vehicle storage; and
- Add a protected signal phase for the westbound left turn movement.

Sensitivity testing was also conducted at the I-205/SE Johnson Creek Boulevard interchange to evaluate which geometric configurations would be most feasible for the future southbound off-ramp. The interchange was analyzed with SE Fuller Road aligned with the southbound off-ramp, and with SE Fuller Road intersecting SE Johnson Creek Boulevard just west of the southbound off-ramp. The results show that if SE Fuller Road were aligned with the southbound off-ramp the intersection would operate near capacity in the No-build scenario and would exceed capacity in Alternative 1. It was determined that the interchange would operate better, and would meet jurisdictional standards in all future alternatives scenarios (No-build, Alternative 1 and Alternative 2) if SE Fuller Road and the southbound off-ramp were offset. It was also determined that the southbound off-ramp would require dual left turn lanes and dual right turn lanes in all future scenarios in order to operate under jurisdictional standards.

Appendix E
Sensitivity Analysis for the
Recommended Land use Plan

The purpose of this memorandum is to determine the sensitivity of traffic operations at key study area intersections for the Fuller Road Station Area Plan comparing previous transportation analysis of the alternatives to the recommended land use plan.

Executive Summary

The previous transportation analysis for the Fuller Road TOD study was focused on two alternatives (land use and roadway network). Findings related to potential impacts and mitigation were based on this analysis. After this analysis was concluded, a land use plan was recommended.

The recommended land use plan produced slightly trips than a previous alternative that had the higher intensity and density (between the previous two alternatives), and therefore it would seem that the impacts could be slightly less, or the same as, the previous analysis.

To help better understand the impacts, a sensitivity test of trip generation and transportation impacts was conducted for the recommended plan. This sensitivity analysis was not as in depth as the analysis conducted on the two previous land use alternatives, but followed the same basic methodology and assumptions as the previous analysis.

The sensitivity was focused on the two intersections along SE 92nd Avenue (at SE Johnson Creek Boulevard and SE Otty Road) where previous impacts had been identified. Based on this sensitivity analysis no new impacts were identified.

Land Use Summary

Two previous land use alternatives had been developed and analyzed. The recommended plan was developed based on this analysis. Table 1 summarizes the land use for the two alternatives and recommended plan.

Table 1: Fuller Road TOD Land Use Alternatives

Alternatives	Net ft²	Retail ft²	Office ft²	Dwelling Units
Alternative 1	2,492,400	607,950	727,200	746
Alternative 2	2,219,400	478,050	172,800	233
Recommended Plan	2,045,400	511,350	630,600	528

SOURCE: Draft Fuller Road Station Area Plan, Executive Summary, June 2007

The recommended plan has less net square footage associated with it than the other alternatives analyzed, however the retail, office and dwelling unit assumptions are all between the prior alternatives analyzed. The recommended plan is closest to Alternative 1 land use (but slightly less) and it would be expected that impacts may be similar to Alternative 1.

Trip Generation

A sensitivity test was conducted based on the trips generated from an aggregated level to the trips generated from the prior two alternatives. The same land use categories as used in the previous analysis were used to help develop the trips for comparison. This technique for trip generation varies slightly from the previous analysis because the previous analysis developed trips for sub-areas within the study area and also looked at internal trip reductions as well as the potential for pass-by trips. Table 2 summarizes the aggregated trip generation for each alternative.

Table 2: Fuller Road TOD Aggregated Land Use Trip Generation by Alternative

Alternatives	In	Out	Total
Alternative 1	3,573	5,085	8,658
Alternative 2	2,384	2,957	5,340
Recommended Plan	3,153	4,495	7,647

SOURCE: Institute of Transportation Engineers Trip Generation Manual, 7th Edition

Based on the aggregated trip generation, the recommended plan generates approximately 12% fewer trips than Alternative 1, and approximately 43% more trips than Alternative B. This would be expected due to the fact that the land use for the recommended plan is between Alternative 1 and Alternative 2.

Trip Distribution

The same trip distribution was assumed for the sensitivity analysis for the recommended plan as was assumed for analysis under Alternatives 1 and 2.

Traffic Operations

Prior analysis indicated that Alternative 1 had significant impacts (impacts by increasing delay beyond No-build by 10 seconds and/or V/C ratio of 0.05) at the intersections of SE Johnson Creek Boulevard/SE 92nd Avenue and SE Otty Road/SE 92nd Avenue, while Alternative 2 did not have any significant impacts.

Since the trip generation for the recommended plan was closer to Alternative 1 than Alternative 2, the same traffic model that was used for Alternative 1 was used for the sensitivity testing for the Recommended Plan. The trips at the two study area intersections with significant impacts were adjusted based on the new trip generation and analyzed. Table 3 summarizes the findings.

Table 3: Fuller Road TOD 2027 PM Peak Hour Sensitivity Traffic Operations

	No-Build			Recommended Plan		
Intersection	*Delay*	*LOS*	*V/C*	*Delay*	*LOS*	*V/C*
SE 92nd Ave/SE Johnson Creek Blvd	84.5	F	1.01	83.3	F	1.03
SE 92nd Ave/SE Otty Rd	90.1	F	1.09	91.8	F	1.10

SOURCE: Synchro v6.0

Based on the sensitivity testing for transportation analysis the recommended plan does not significantly impact previously identified intersections.