CITY OF TIGARD

CONCEPTS FOR POTENTIAL STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

FINAL REPORT *VOLUME 3 OF 3*

JUNE 2012

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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COMPREHENSIVE PLAN POLICY REVIEW & ANALYSIS

APPENDIX 3A

TIGARD

Appendix 3A:
Comprehensive Plan Policy Review and Analysis

The purpose of this comprehensive plan analysis is to show the level of support for the *Tigard High Capacity Transit (HCT) Land Use Plan* under the existing goals and policies found in the *Tigard Comprehensive Plan*. During the existing conditions phase of the project, a Policy Analysis Memo was completed that identified appropriate goals and policies. This analysis covers the goals and policies identified in that task and provides a more detailed level of analysis.

Goal 2.1: Maintain an up-to-date *Comprehensive Plan*, implementing regulations and action plans as the legislative foundation of Tigard's land use planning program.

- Policy 2. Land use regulations, plans and actions to be consistent with and implement *Comprehensive Plan.*

Analysis: The *HCT Land Use Plan* is an exploration of concepts that could support HCT in Tigard. The *HCT Land Use Plan* does not require legislative action, but recommendations that are developed from the plan will likely require legislative action. Those actions would be done in a manner that creates consistency between the *HCT Land Use Plan* and the *Comprehensive Plan.*

Finding: Future legislative actions would be necessary to fully implement any of the concepts found in the *HCT Land Use Plan* and those actions would insure consistency with the *Comprehensive Plan.*

- Policy 3. Coordinate implementation of land use amendment with other affected jurisdictions and agencies.

Analysis: Implementation of some the *HCT Land Use Plan* concepts would require coordination with neighboring jurisdictions that fall within station community boundaries, including the cities of Beaverton, Portland, Lake Oswego, Tualatin, King City and Durham. The City of Tigard would also have to work closely with the Oregon Department of Transportation (ODOT) and TriMet which have jurisdiction over the state highways and transit centers within or just outside the city. The city must also comply with Metro regional land use policies in order to be eligible for transportation funds to help finance the plan.

Finding: Depending on which concepts from the *HCT Land Use Plan* are selected for further development, the city would need to work closely with its local, regional and state partners.

- Policy 5. Promote urban level development in Metro-designated Centers and Corridors, and Employment/Industrial Areas.

Analysis: All station communities are at least partially located in a Metro-designated center or corridor or include employment lands. In general, the application of the Tigard Typology increases the intensity of the existing land use pattern, helping to meet this city policy. In addition, employment lands are found in the proposed Upper Bridgeport Village and Tigard Triangle station communities. In general, Downtown Tigard and 99W/Durham (town centers) and Washington Square (regional center) better meet this goal since they include town center or regional center designations as well as corridor and employment land designations. However, depending on the concepts selected for further development, the city may have to create new centers or amend existing center boundaries.

Finding: The concepts found in the *HCT Land Use Plan* promote Metro's *2040 Growth Concept* and the designated Centers, Corridors and Employment/Industrial Areas.

- Policy 6. Promote development and maintenance of range of land use types of sufficient economic value.

Analysis: The concepts are designed to provide options that accommodate the city's residential, office, retail and industrial needs spatially in a way that encourages compact, transit-supportive development. The *HCT Land Use Plan* included an economic analysis of each of the station communities and the likely development types based on the current and near future economic conditions.

Finding: The concepts found in the *HCT Land Use Plan* provide a range of land uses that are economically feasible in the near term.

- Policy 15A. New land use zone amendments must ensure sufficient transportation to support permitted land uses.

Analysis: The *HCT Land Use Plan* included a transportation analysis of the proposed concepts. While new development would likely increase the level of traffic, the analysis indicated that transit-supportive land uses created by the concepts would help mitigate the traffic demand. However, additional transportation facilities, including HCT, bicycle, pedestrian and auto connections, would likely be necessary for many of the concepts. In addition, a more rigorous analysis would be required by the Transportation Planning Rule (TPR) for any zone amendments.

Finding: Some new traffic would be expected with an increase of development intensity, but the mix of uses and potential for HCT could help mitigate traffic demand.

- Policy 15B. Development in new zone shall not affect existing or proposed infrastructure.

Analysis: Some of the concepts found in the *HCT Land Use Plan* may require the development of a new zone. The new zones envisioned in the concepts are meant to be compatible with existing city growth patterns and the vision for the city. If a new zone is required, additional analysis would be also be needed to ensure that existing infrastructure is not negatively impacted, or new infrastructure could be put in place to mitigate negative impacts.

Finding: Some of the concepts found in the *HCT Land Use Plan* may require the development of new zones requiring additional analysis to ensure no negative impacts to existing infrastructure.

- Policy 15C. New zone shall fulfill a proven community need.

Analysis: Any of the concepts would provide an increase in land use intensity and transit-supportive development that the City of Tigard has identified as a key component in fostering activity centers that are healthy, sustainable and support a variety of uses.

Finding: The *HCT Land Use Plan* concepts help the city accommodate future growth and meet the city's future vision.

- Policy 15D. Demonstrate that land for uses in new zone is currently inadequate.

Analysis: Some of the concepts included in the *HCT Land Use Plan* would necessitate the creation of a new zone. In those cases, the zone would be required to help support HCT through a mix of uses, primarily adding residential uses to commercial zones. While there may be plenty of vacant or underutilized land along corridors for redevelopment, the zoning in many cases does not support the intensity and mix of uses necessary to support HCT.

Finding: If concepts that require the creation of new zones are forwarded for further development, a more complete analysis of the existing zoning will be necessary - particularly in relation to the amount of commercial zoning found along OR 99W–Pacific Highway.

- Policy 15E. Land uses permitted in new zone will be developed in compliance with all applicable regulations.

Analysis: Any new zones created to further the concepts would be adopted as part of the Tigard Development Code and any new development will proceed within the established citywide land use review process.

Finding: Any new zones created to implement the concepts found in the *HCT Land Use Plan* would be developed to comply with all applicable regulations.

- Policy 15F. Land uses permitted in new zone would be compatible with surrounding land uses.

Analysis: The Tigard Typology was designed to be compatible with surrounding land uses. The concepts found in the *HCT Land Use Plan* are based on the Tigard Typology and are intended to have enough flexibility to allow further fine tuning of design through new zones and design standards. Higher-density uses in centers and along corridors are intended to transition to existing single-family residences through a reduction in building height and land use intensity.

Finding: Any new zones created to implement the concepts found in the *HCT Land Use Plan* are intended to be compatible with surrounding land uses and the necessary design standards would need to be developed with the new zone or zones.

- Policy 15G. Land uses permitted in new zone do not detract from viability of City's natural systems.
- Policy 22. Identify, designate and protect natural resources as part of city's land use program.

Analysis: The Tigard Typology was designed to be compatible with the city's natural systems. Citywide natural systems and open spaces could be maintained and preserved without threat from new development. Several proposed concepts would provide new open spaces and parks as well as multi-use trails to promote active transportation and providing better access to parks and open spaces for Tigard residents.

Finding: Any new zones created to implement the concepts found in the *HCT Land Use Plan* are intended to preserve and protect the city's natural systems.

- Policy 23. New development should minimize conflict between it and adjacent existing and future land uses.

The Tigard Typology was designed to be compatible with surrounding land uses and infrastructure. The concepts found in the *HCT Land Use Plan* are based on the Tigard Typology and are intended to have enough flexibility to allow further fine tuning of design through new zones and design standards. Higher-density uses in centers and along corridors are intended to transition to existing single-family residences through a reduction in building height and land use intensity.

Finding: Any development to implement the concepts found in the *HCT Land Use Plan* is intended to be compatible with surrounding land uses and in some cases the necessary design standards would need to be developed with the new zone or zones.

- Policy 24. Establish design standards to promote quality urban development and enhance community.

Analysis: The Tigard Typology was designed to promote quality urban development and enhance the community experience while supporting HCT. While detailed design standards have not been created, the outline for these standards is found in the Typology. In addition, many of the design standards already in use in Downtown Tigard could be used in other concepts if they are developed further.

Finding: Any development to implement the concepts found in the *HCT Land Use Plan* is intended to be compatible with surrounding land uses and in some cases the necessary design standards would need to be developed to ensure this compatibility.

Goal 5.1: Protect natural resources and the environmental and ecological functions they provide and, to the extent feasible, restore natural resources to create naturally functioning systems and high levels of biodiversity.

- Policy 1. Protect and restore natural resources in a variety of methods to promote livability and environmental stewardship.

Analysis: The Tigard Typology was designed to be compatible with the city's natural systems and to protect natural resources. Citywide natural systems and open spaces could be maintained and preserved without threat from new development. Several proposed concepts would provide new open spaces and parks as well as multi-use trails to promote active transportation and providing better access to parks and open spaces for Tigard residents.

Finding: Any new zones created to implement the concepts found in the *HCT Land Use Plan* are intended to preserve and protect the city's natural systems. Concepts developed under existing zones and standards would meet those requirements.

Goal 6.1: Reduce air pollution and improve air quality in the community and region.

- Policy 3. Promote land use patterns that expand multimodal opportunities and are compatible with existing neighborhoods.

Analysis: The Tigard Typology was designed to be supportive of HCT. Any concepts developed further are intended to be spatially compact allowing for better pedestrian and bicycle connections. In addition, facilitating access to transit would be a major objective in any further concept development. Concepts would ensure preservation the integrity of established neighborhoods by incorporating a gradual transition in land use intensity and building height.

Finding: Any new development created to implement the concepts found in the *HCT Land Use Plan* is intended to expand multimodal opportunities and be compatible with existing neighborhoods.

- Policy 5. Cooperate with other public agencies to minimize localized transportation impacts to air quality.

Analysis: The Tigard Typology was designed to be supportive of HCT and reduce reliance on automobile travel. Any concepts developed further are intended to be spatially compact allowing for better pedestrian and bicycle connections. While traffic demand will continue to grow with new development, the concepts are intended to reduce the overall demand for single occupancy travel and thus improve air quality. The City of Tigard would continue to work with ODOT and Washington County Department of Transportation to resolve issues involving roadways that are under the authority of those agencies.

Finding: The concepts found in the *HCT Land Use Plan* are intended to minimize localized transportation impacts to air quality.

Goal 6.2: Ensure land use activities protect and enhance the community's water quality.

- *Policy 7. Investigate and use measures that limit community's effective impervious area.*

Analysis: The Tigard Typology was designed to limit the amount of impervious area in urban area. Directing compact, higher-intensity development in locations deemed desirable by the city and community would work to decrease the amount of impervious surface in Tigard while opening the possibility of revegetating vacated strip commercial development into new open spaces, parks and natural areas. In some cases, new development standards may need to be created to implement the concepts and ensure impervious area is minimized.

Finding: The concepts found in the *HCT Land Use Plan* are intended to minimize the amount of effective impervious area.

Goal 8.1: Provide a wide variety of high quality park and open spaces for all residents

- Policy 5. Develop parks consistent with descriptions and standards contained in park system master plan.

Analysis: The conceptual proposal for each concept includes a network of community parks that would be linked with greenways on low-traffic streets that support safe and comfortable bicycle and pedestrian travel. New trails will also be incorporated into existing natural features in several concepts.

Finding: The concepts found in the *HCT Land Use Plan* are intended to be consistent with the existing *Park System Master Plan.*

Goal 8.2: Create a Citywide network of interconnected on- and off-road pedestrian and bicycle trails.

- Policy 1. Create interconnected regional and local system of trails and paths that link neighborhoods, parks, open spaces, major urban activity centers and regional recreational opportunities.

Analysis: The *HCT Land Use Plan* proposes several new investments in trail infrastructure, including two components that are considered high-priority in the *Trail Systems Master Plan* which are the Tigard Street trail connection and the extension of Fanno Creek Trail south to Durham. Additional trails would link the Scholls Ferry/121st and Washington Square concepts and provide an east-west connection through the heart of Tigard Triangle.

Finding: The concepts found in the *HCT Land Use Plan* are intended to improve the trail system within Tigard to improve the existing and new neighborhoods.

- Policy 2. Design and build greenway trails and paths to minimize impact on environment.

Analysis: The Tigard Typology and the concepts created with the Typology include greenway trails and paths to improve access to nature and pedestrian connections. Further work on design standards may be needed in some concepts to ensure that all greenway trails would be designed and built to standards that reduce potential adverse effects to the natural environment.

Finding: Additional design standards, or the application of existing design standards, may be necessary if certain concepts are moved forward for further development to ensure the proper protection of the natural environment.

Goal 9.1: Develop and maintain a strong, diversified, and sustainable local economy.

- Policy 5. Well-designed and efficient development of vacant and underutilized industrial and commercial lands.

Analysis: *The HCT Land Use Plan* is intended to develop land use patterns in Tigard that are supportive of JCT. An important aspect of this is development of vacant and underutilized industrial and commercial lands. Some concept areas have more opportunity to redevelop vacant lands than others, but all are intended to meet this policy. Tables A-1 and A-2 demonstrate that Downtown Tigard, Washington Square and Tigard Triangle are best able to take advantage of the preponderance of vacant and underutilized taxlots in Tigard.

Finding: Some of the concepts better meet this policy than others, but all are intended to make efficient use of underutilized and vacant land.

- Policy 6. Promote actions that result in greater utilization of Employment/Industrial Areas.

Analysis: The Tigard Triangle, Downtown Tigard, and Upper Bridgeport Village concepts contain Metro-designated Employment lands and therefore would best meet this policy. However, some changes to these designations may be required in the Tigard Triangle to fully implement the concept.

Finding: Some of the concepts include designated Employment lands and are intended to make good use of those lands, with some small changes needed to fully implement one of the concepts.

- Policy 10. Support development of regional multimodal transportation systems throughout Portland Metro.

Analysis: The *HCT Land Use Plan* is a component of the *Southwest Corridor Plan* and examined areas in Tigard that could support the transit-supportive, mixed-use development that would incorporate infrastructure to help improve multimodal access and connectivity. The proposed concepts could be implemented regardless of whether HCT is extended to Tigard, providing the city with concepts for station communities or new and revitalized neighborhood centers.

Finding: The *HCT Land Use Plan* directly supports this policy since it is part of a larger regional process.

Goal 9.3: Make Tigard a prosperous and desirable place to live and do business.

- Policy 1. Focus significant portion of future employment and high-density housing in Metro-designated Centers and (HCT) Corridors.

Analysis: All of the concepts are within the larger Southwest Corridor and include the Metro-designated centers at Downtown Tigard, Washington Square and 99W/Durham.

Finding: The *HCT Land Use Plan* directly supports this policy since all concepts are within the Southwest Corridor and Metro-designated centers.

Goal 10.1: Provide opportunities for a variety of housing types to meet the diverse housing needs of current and future city residents.

- Policy 1. Adopt and maintain land use policies, codes and standards providing opportunities to develop variety of housing types for existing and future needs.

Analysis: The Tigard Typology is intended to provide a range of housing choices for Tigard residents, including apartments and condominiums, townhomes, duplexes and single-family detached housing depending on the station type. Each type would facilitate residents' greater access to nearby jobs, transit and other amenities. Where new zones are required to implement concepts, new standards to implement this policy may be required.

Finding: The *HCT Land Use Plan* directly supports this policy since all concepts are intended to provide a variety of housing types.

- Policy 4. Adopt and maintain land use regulations providing opportunities to develop housing for persons with special needs.

Analysis: The Tigard Typology is intended to provide a range of housing choices for Tigard residents, including housing for special needs. However, detailed planning and other incentives would be required for concepts that are identified for further development.

Finding: The *HCT Land Use Plan* directly supports this policy since all concepts are intended to provide a variety of housing types, including special needs housing.

- Policy 5. Provide for high and medium density housing in areas such as Centers and Corridors that can support higher densities at present or in future.

Analysis: The Tigard Typology is intended to provide a range of housing choices for Tigard residents, including apartments and condominiums, townhomes, duplexes and single-family detached housing depending on the station type. Several of the concepts are located within Metro designated centers and corridors and would support this policy if developed further.

Finding: The *HCT Land Use Plan* directly supports this policy since all concepts are intended to provide a variety of housing types within Metro-designated centers and corridors.

Goal 10.2: Maintain a high level of residential livability.

- Policy 1. Adopt measures to protect and enhance quality and integrity of residential neighborhoods.

Analysis: The Tigard Typology is intended to provide a transition within each type to protect and enhance existing residential neighborhoods. It is also intended to create new quality residential neighborhoods that support HCT. Some concepts are intended to somewhat increase the intensity of existing neighborhoods while adding amenities to further enhance those neighborhoods. For those concepts that are identified for further development, additional design standards may be needed to insure this policy is met.

Finding: The *HCT Land Use Plan* directly supports this policy since all concepts are intended to protect and enhance the quality and integrity of residential neighborhoods.

- Policy 2. Seek to provide multimodal transportation access from residential neighborhoods to transit, retail services, employment and other key locations.

Analysis: The intent of the *HCT Land Use Plan* was to create concepts that support HCT through quality design and better pedestrian and bicycle access to transit. All concepts would include infrastructure investments that improve bicycle/pedestrian access to activity centers that feature goods and services, jobs and transit services.

Finding: The *HCT Land Use Plan* was designed to meet this policy and each concept includes improvements to improve multimodal access.

- Policy 5. Encourage housing that supports sustainable development patterns.

Analysis: The Tigard Typology is intended to accommodate vertical mixed-use development in each station type, which is an important aspect of spatially compact development. The typology is intended to allow a fine-grain mix of uses to be located at close enough distances to promote bicycle and pedestrian travel and allow visitors and residents to combine shopping trips.

Finding: The Tigard Typology is intended to promote sustainable development patterns.

Goal 12.1: Develop mutually supportive land use and transportation plans to enhance the livability of the community.

- Policy 1. Plan for transportation system that meets current community needs and anticipated growth and development.
- Policy 2. Prioritize transportation projects according to community benefit.
- Policy 3. Maintain and enhance transportation functionality by emphasizing multimodal travel options.
- Policy 4. Promote land uses and transportation investments that promote balanced transportation options.
- Policy 5. Develop plans for major transportation corridors and provide appropriate land uses in and adjacent to those corridors.
- Policy 6. Support land use patterns that reduce greenhouse gas emissions and preserve function of transportation system.
- Policy 9. Coordinate with private and public developers to provide access via safe, efficient and balanced transportation system.

Analysis: *The HCT Land Use Plan* is intended to link land use and transportation in a manner that enhances the community and supports HCT. The concepts include infrastructure enhancements that would serve to provide transportation access for all modes, including transit, bicycle, pedestrian and automobile. These improvements, including two multimodal bridges over OR 217 and one over Interstate 5, would help meet the needs of anticipated growth and development. Bicycle and pedestrian infrastructure enhancements, coupled with the implementation of compact mixed-use development in proposed concepts would encourage active transportation modes and reduce the need to drive between destinations. This would help create a healthier environment through lower emissions and increase in pedestrian and bicycle travel. Transit, whether in the form of existing bus service, enhanced (or express) bus, bus rapid transit or light rail, would also play a key role in shaping the future of Tigard and provide additional options to travel to, from, and within Tigard for residents and visitors.

The city has developed plans for OR 99W-Pacific Highway and the concepts that abut Pacific Highway (Tigard Triangle, Downtown Tigard, 99W/Gaarde-McDonald and 99W/Durham) are generally consistent with those plans.

Finding: *The HCT Land Use Plan* is intended to link transportation and land use to support multimodal transportation investments and create healthier, more efficient communities, thus supporting these policies.

Goal 12.2: Develop and maintain a transportation system for the efficient movement of people and goods.

- Policy 2. Manage transportation system to support desired economic development activities.
- Policy 3. Design streets to encourage reduction in trip length by improving arterial, collector and local street connections.
- Policy 4. Design arterial routes, highway access and adjacent land uses in ways that facilitate efficient movement of people, goods and services.
- Policy 5. Cooperate with railroads in facilitating and preserving rail freight service to existing and future businesses that depend on railroad service.
- Policy 6. Develop and maintain efficient arterial grid system that provides access within city and serves through traffic.
- Policy 7. Use strategies for access management, including support modifications that bring access points into compliance with applicable standards.
- Policy 9. Require provision of appropriate parking in balance with other transportation modes.
- Policy 11. Design transportation system to provide connectivity between Metro-designated centers, corridors, employment and industrial areas.

Analysis: *The HCT Land Use Plan* is intended to balance transportation system efficiency with new, more intensive land use types. Each of the concepts seeks to achieve this balance in different ways. The Downtown Tigard and Tigard Triangle concepts feature a new multimodal connection across OR 217 that would allow automobile, pedestrian, and bicycle connections within the Tigard town center and between the two employment areas. The Washington Square concept also features a new multimodal connection across OR 217 that would connect the Nimbus industrial corridor and the WES line with the shopping mall and the heart of the proposed concept, facilitating traffic within the regional center. The Downtown Tigard concept features an improved grid system east of Main Street to improve traffic circulation while 99W/Durham and Tigard Triangle would receive additional minor street connection improvements that would reduce trip distance. All concepts would implement off-street paths that bisect large blocks for bicycle and pedestrian use, while trail

improvements would facilitate travel between employment areas, centers and corridors within Tigard and beyond.

The proposed railroad crossings in Washington Square, Downtown Tigard and Upper Bridgeport Village will be designed in a manner that does not disrupt or jeopardize freight movement throughout the corridor. Parking regulations would be developed further depending on the concepts selected for implementation.

Finding: *The HCT Land Use Plan* is intended to balance transportation system efficiency with new, more intensive land use types, thus supporting these policies.

Goal 12.3: Provide an accessible, multimodal transportation system that meets the mobility needs of the community.

- *Policy 4. Support and prioritize bicycle, pedestrian and transit improvements for transportation disadvantaged populations.*

Analysis: The *HCT Land Use Plan* is intended to improve bicycle, pedestrian and transit access for all residents of Tigard. For those concepts that are selected for further development, additional planning will be needed to determine the priority improvements. These improvements would need to be selected through a process that weighs a number of criteria, including this policy. Until further planning and design work is completed it is unknown how this policy would be met.

Finding: Further planning and design work is required to determine how this policy would be met.

- Policy 5. Develop and maintain neighborhood and local connections to provide efficient circulation in and out of neighborhoods

Analysis: All concepts will advance this policy. The Downtown Tigard and Tigard Triangle concepts feature an improved grid system to provide efficient circulation. In addition the concepts would include a new multimodal connection across OR 217 that allows for automobile, pedestrian, and bicycle connections between the two areas. The Washington Square concept also features a new multimodal connection across OR 217 that would connect the Nimbus industrial corridor and the WES line with the shopping mall and the heart of the proposed concept. 99W/Durham, 99W/Gaarde-McDonald, and Tigard Triangle would receive additional minor street connection improvements.

Finding: The transportation improvements identified in each of the concepts would help to meet this policy.

- Policy 6. Require development adjacent to transit routes to provide direct pedestrian accessibility.
- Policy 7. Develop and implement public street standards that recognize multi-purpose nature of street right-of-way.
- Policy 8. Design all projects on city streets to encourage pedestrian and bicycle travel.
- Policy 9. Require sidewalks to be constructed in conjunction with private development and consistent with adopted plans.
- Policy 10. Require and/or facilitate the construction of off-street trails to develop pedestrian and bicycle connections that cannot be provided by a street.
- Policy 11. Require appropriate access to bicycle and pedestrian facilities for schools, parks, public facilities and commercial areas.

Analysis: The Tigard Typology is intended to create improved pedestrian and bicycle connections through new improvements and enhanced design standards. All concepts include high-quality pedestrian and bicycle infrastructure in the form of sidewalks, on-street bicycle lanes and off-street multi-use trails.

Finding: The pedestrian and bicycle improvements in each of the concepts would help meet this policy.

Goal 12.4: Maintain and improve transportation system safety.

- Policy 1. Consider intended uses of street during the design to promote safety, efficiency, and multimodal needs.
- Policy 2. Coordinate with appropriate agencies to provide safe, secure, connected and desirable pedestrian, bicycle and public transit facilities.
- Policy 3. Require new development to provide safe access for all modes to and from publicly dedicated street.
- Policy 4. Develop access management strategies for arterial and collector streets to improve safety.
- Policy 5. Prioritize intersection improvements to address safety deficiencies.
- Policy 6. Include safety mitigation as priority criterion in making transportation investments.
- Policy 7. Enhance and maintain neighborhood traffic management program.

Analysis: The *HCT Land Use Plan* is intended to create safe transportation facilities for all residents. In some concepts, transportation safety is improved through a better grid network of streets, lower speeds and providing more travel options. In other concepts, new off-street trails for bicyclists and pedestrians are included to create a safer, more attractive route. However, in all concepts further planning and design is required to determine exact connections and improvements and that work would be done with these policies in mind.

Finding: The transportation improvements identified in each of the concepts would help to meet these policies, but further planning and design work is required for those concepts that are selected for implementation.

Goal 12.6: Fund an equitable, balanced, and sustainable transportation system that promotes the well-being of the community.

- Policy 2. Seek to invest in capital projects that leverage other infrastructure investments.

Analysis: The multimodal bridges over freeways at Downtown Tigard, Tigard Triangle and Washington Square represent the most cost-intensive elements of the *HCT Land Use Plan.* These improvements would likely need to be done with regional or federal funding to leverage local dollars. In addition those investments and the other investments such as new streets, trails and rail crossings would help leverage private investment in the concept areas.

Finding: The concepts include public investments that would leverage funding from regional and federal sources as well as help incentivize private development.

- Policy 3. Seek opportunities for transportation investments that support transportation goals of efficiency, multimodal access and safety.

Analysis: The *HCT Land Use Plan* is intended to create safe transportation facilities for all residents. In some concepts, transportation safety is improved through a better grid network of streets, lower speeds and providing more travel options. In other concepts, new off-street trails for bicyclists and pedestrians are included to create a safer, more attractive route. However, in all concepts, further planning and design is required to determine exact connections and improvements; that work would be done with these policies in mind.

Finding: The transportation improvements identified in each of the concepts would help to meet these policies, but further planning and design work is required for those concepts that are selected for implementation.

Goal 13.1: Reduce energy consumption.

- Policy 1. Promote energy consumption reduction associated with vehicle miles traveled through land use patterns, public transit, bicycle and pedestrian infrastructure.

Analysis: The Tigard Typology is intended to accommodate vertical mixed-use development in each station type, which is an important aspect of energy efficient and spatially compact development. The typology is intended to allow a fine-grain mix of uses to be located at close enough distances to promote bicycle and pedestrian travel and allow visitors and residents to combine shopping trips and reduce energy consumption.

Finding: The Tigard Typology is intended to promote sustainable development patterns that reduce energy consumption.

Goal 15.2 Facilitate the development of an urban village.

- Policy 1. New zoning, design standards and guidelines developed and used ensuring quality, attractiveness, special character of downtown.
- Policy 2. Downtown land use plan provides dense land use mix including retail, residential, institutional, office and open space uses.
- Policy 6. New downtown housing shall provide for range of housing types in high-quality living environment.

Analysis: These policies pertain specifically to Downtown Tigard. The Downtown Tigard concept would advance these policies by reinforcing the zoning and design standards already in place within the Downtown District. Some changes to the zoning and design standards might be considered, but the concept as envisioned largely implements the current policies in place for downtown.

Finding: The Downtown Tigard concept is consistent with these policies and the existing plans for downtown.

Goal 15.3: Develop and Improve the Open Space System and Integrate Natural Features into downtown.

- Policy 3. Downtown development consistent with need to protect and restore functions and values of wetland and riparian area within Fanno Creek Park.

Analysis: The Downtown Tigard concept includes new green spaces and urban plazas that would provide a verdant setting for the enjoyment of residents and visitors of Tigard, facilitate access to and from Fanno Creek and its multi-use trail, as well as integrate the natural landscape into downtown.

Finding: The Downtown Tigard concept is consistent with this policy and the existing plans for downtown.

Goal 15.4: Develop comprehensive street and circulation improvements for pedestrians, automobiles, bicycles, and transit.

- Policy 1. Downtown shall be served by complete array of multimodal transportation services.
- Policy 2. Downtown shall be city's primary transit center for rail and bus transit service and supporting land uses.
- Policy 3. Plan for and manage transit user parking to ensure the downtown is not dominated by "park and ride" activity.
- Policy 4. Address downtown's transportation needs in Transportation System Plan; identify relevant capital projects, transportation management efforts.

Analysis: The Downtown Tigard concept includes new multimodal connections to support all transportation modes. The concept includes an enhanced grid of streets, new pedestrian and bicycle connections and a new multimodal roadway across OR 217 that connects to Tigard Triangle. The Downtown Tigard concept supports an increase in transit investment in the downtown, including the potential for HCT.

If downtown is selected for future implementation work, additional issues such as parking and the location of park and ride lot(s) would need to be considered.

Finding: The Downtown Tigard concept is consistent with these policies but additional planning and design work would be required to fully implement some policies.

- Policy 5. Streetscape and public area design shall focus on creating pedestrian-friendly environment.

Analysis: The intent of the Tigard Typology is to create a pedestrian-friendly environment. The application of the typology in the Downtown Tigard concept would include pedestrian improvements consistent with existing plans for downtown.

Finding: The Downtown Tigard concept is consistent with this policy and the existing plans for downtown.

Table A-1: Vacant and Underutilized Land by Station Community

	VACANT LAND				REDEVELOPMENT POTENTIAL					
	PART		FULL		HIGH (< 0.33)		MEDIUM (0.33 - 1.0)		LOW (> 1.0)	
	Lots (or Partial)	Acres	Lots (or Partial)	Acres	Lots (or Partial)	Acres	Lots (or Partial)	Acres	Lots (or Partial)	Acres
DOWNTOWN	7	22.27	5	4.58	44	53.85	80	78.81	175	443.52
TRIANGLE	43	67.74	23	18.61	94	39.2	56	57.14	121	288.27
WASH SQ	8	11.5	3	1.44	19	29.8	18	31.7	84	409.29
SCHOLLS	0	0	0	0	0	0	5	3.04	13	46.03
GAARDE	3	4.94	2	0.65	6	2.92	13	10.39	37	74.59
DURHAM	2	0.83	2	3.66	5	3.85	0	0	28	105.69
BRIDGEPORT	0	0	5	3.75	7	12.19	3	1.38	60	220.59

Table A-2: Percentage of Vacant and Underutilized Land by Station Community

	TOTAL ACREAGE (WITHIN CITY OF TIGARD)	VACANT ACREAGE	PERCENTAGE VACANT	UNDERUTILIZED ACREAGE (HIGH)	PERCENT UNDERUTILIZED
DOWNTOWN	763.27	26.85	3.5%	53.85	7.1%
TRIANGLE	638.07	86.35	13.5%	39.2	6.1%
WASH SQ	449.27	12.94	2.9%	29.8	6.6%
SCHOLLS	265.33	0	0%	0	0%
GAARDE	502.57	5.59	1.1%	2.92	0.6%
DURHAM	181.64	4.49	2.5%	3.85	2.1%
BRIDGEPORT	353.23	3.75	1.1%	12.19	3.5%

CITY OF TIGARD

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

EXISTING ZONING REVIEW:
DOWNTOWN AND TRIANGLE

APPENDIX 3B

TIGARD

Appendix 3B:
Existing Zoning Review: Downtown and Triangle

This section provides an audit of zoning designations for Downtown and Tigard Triangle that contrasts the uses, densities and design permitted in existing zones with the station typology for those concepts. These concepts were chosen for analysis due to their high score in implementation readiness. Table B-1 provides the acreages for each comprehensive plan category within Tigard.

TOWN CENTER/MAIN STREET TYPE

The Town Center/Main Street (TC/MS) land use type would focus on cultivating a fine grain mix of uses, including specialty retail, office, dining, and medium to high density housing within a traditional urban context with human-scaled design features. Commercial, light industrial and residential uses would be permitted, while vertical mixed-use, ground-floor retail and residential uses would be required in specific locations. The TC/MS station community type recommends an average Floor Area Ratio (FAR) of 1.0.

DOWNTOWN TIGARD

The Mixed Use-Central Business District (MU-CBD) Zone in Downtown Tigard generally meets the letter and spirit of guidelines set forth for new development within the TC/MS land use type. There are regulations on requiring ground-floor retail at certain locations as part of new development, most notably Main Street. Ground floor window transparency requirements for nonresidential and mixed-use buildings further the goal of activating the streetscape. There is also an encouragement of vertical mixed-use elsewhere at the intersection of OR 99W-Pacific Highway and Pacific Highway and in Downtown north of Burnham Street. This zone allows for some conditional light industrial uses in the form of research and development, but otherwise permits most residential and commercial uses but restricts automobile-oriented development such as motor vehicle sales and servicing establishments. There are no areas within the zone that require residential uses.

The Development Code does not set a requirement in regards for FAR within the MU-CBD zone, however they establish minimum and maximum residential density depending on the location of new development in Downtown. Most areas establish a minimum density of 25 dwelling units/acre (du/acre) which exceeds the guideline for the TC/MS type (with the exception of areas located closest to Fanno Creek where the minimum density is 15 du/acre). Maximum densities in much of Downtown are 50 du/acre, with 80 du/acre the limit for locations closest to the Tigard Transit Center. The zone allows for 100% maximum site coverage along Main Street with 80-90% in other parts of Downtown (within the MU-CBD zone).

There are also residential and industrial zones encompassed by the MU-CBD zone that largely does not meet the essence of the TC/MS station type. This includes areas of Light Industrial (I-L) and Industrial Park (I-P) to the immediate east of Hall Boulevard which do not permit or heavily restrict residential and commercial uses (the Industrial Park zone does allow office and many retail uses on a

conditional basis). Elsewhere, areas of R-4.5 and R-12 zoning permit low- to medium-density residential while providing few opportunities for mixed-use development. R-25 zoning allows for single or multi-family dwelling units at 25 du/acre while allowing for limited ground-floor commercial use in multi-family development.

Presently, the City of Tigard enforces off-street minimum parking requirements throughout the city for most uses. It derives maximum parking requirements from Table 3.08-3 in the Metro *Regional Transportation Functional Plan*, which contains stricter maximum parking standards for development within a quarter-mile walking distance to 20-minute peak hour bus service and a half-mile walking distance to 20-minute peak hour rail service. While virtually all commercial uses and most civic uses have enforced maximum off-street spaces, almost no residential uses have maximum requirements. Furthermore, manufacturing and production industrial uses do not have parking maximums, either. While most uses contain minimum parking standards, those requirements are not contextually sensitive to the location of nearby transit. It is generally recommended for the TC/MS type to contain no required minimum parking, as well as parking maximums throughout the district. Additional guidelines include finding shared parking opportunities, implementing a district-wide parking management framework and designing parking structures to blend in with area architecture. The MU-CBD zone and the TC/MS type are in agreement on the subject of surface parking lots, which are to be allowed on the side or rear of newly constructed buildings, with lots adjacent to the street to be approved only with conditions (such as surface parking not occupying more than 50% of the site frontage and must be setback 10 feet from the sidewalk with landscaping).

TIGARD TRIANGLE

The TC/MS type is currently zoned Mixed-Use Employment (MUE) and C-G. The C-G zone is not capable of supporting the transit-supportive, compact mixed-use that is integral to future aspirations for this station community type. However, areas that are zoned for C-G (PD) in the Triangle permit multifamily residential. The MUE zone allows for a wide variety of uses, include office, institutional, multifamily residential (at maximum density of 25 du/acre) and retail commercial (that does not occupy more than 60,000 square feet of floor area per building). The maximum building height allowed is 45 feet, which is likely to be insufficient for fostering vertical mixed-use in this area. There is a maximum of 0.4 FAR allowed in the MUE zone. The parking regulations are in accordance with citywide guidelines which include minimum parking standards as well as the lack of maximums for residential and certain industrial uses. The design standards in place for Tigard Triangle do specify that parking for newly constructed buildings must be located to the side or rear of buildings and that they are limited to 50% of the street frontage.

CORRIDOR TYPE

The Transit Corridor type is meant to provide a mix of uses but within a less urban context and at lower densities than the Town Center/Main Street type. Minimum residential density required is recommended at 10 du/acre and average FAR is forecasted at .40. Vertical as well as horizontal mixed-use development is envisioned. No minimum parking requirements would be imposed close to transit stations, while parking maximums would be enforced.

DOWNTOWN TIGARD

This type would be concentrated along both sides of OR 99W-Pacific Highway, and would provide a gradual transition to more residential neighborhood. Currently, these areas are zoned Neighborhood Commercial (C-N), General Commercial (C-G), and Professional/Administrative Commercial (C-P), none of which are suitable for Corridor type development. The C-N and C-P zones have a minimum lot size of at least 5,000 square feet while the C-G zone does not require a minimum lot size. The C-N zone has a maximum building height of 35 feet while the C-G and C-P zones have a 45 foot limit.

Currently, most commercial uses are permitted but may face restriction on percentage of total square footage. Residential uses are restricted or outright forbidden in these zones, except as part of a Planned Development (PD) - which is not applicable along this stretch of OR 99W. The Community Commercial (C-C) zone does allow multifamily housing up to 12 du/acre but only as part of a PD. None of these Commercial zoning designations allow for light industrial uses.

Minimum and maximum parking requirements for Commercial zones are in accordance with Metro guidelines. While the maximum allotment for parking is fewer for development located adjacent to transit, there are minimum parking requirements in place regardless of the site's distance from transit. The zones currently allow for shared parking but do not contain guidelines on parking lot location and design in relationship with the street.

TIGARD TRIANGLE

The Corridor type is currently intended for property along the north side of OR 99W-Pacific Highway that is currently a patchwork of diminutive zones ranging from Commercial (C-G and C-P) to Residential (R-4.5, R-12, R-25) to Mixed-Use (MUE). The Corridor type would support a wider range of uses than what is currently allowed for most of the area, and would also permit residential development which the non-PD Commercial zones do not currently allow (the MUE zone allows multi-family residential at 25 du/acre). However, Tigard Triangle design standards do not apply for development north of OR 99W, therefore there are no street frontage guidelines for new parking lots currently.

Some taxlots are located outside of the Tigard City Boundary and are zoned R-5 in unincorporated Washington County (with the exception of two taxlots, both of which are zoned Office Commercial (OC) by the county). The R-5 zone is meant for low-density residential uses at no more than 5 du/acre and does not allow most commercial or industrial uses. The OC zone does allow accessory commercial uses and high-density residential at 24 du/acre for planned mixed-use development, but is primarily geared towards institutional and professional office complex uses.

Parking regulations follow Metro/City of Tigard guidelines, although there are no considerations to the parking lot's relationship to the street for newly constructed buildings.

EMPLOYMENT/RETAIL TYPE

The Employment/Retail Destination (E/R) type is designed for regional employment in potential combination with commercial and/or institutional uses. In addition to commercial, residential and

light industrial, heavy industrial would also be permitted in specific locations to reduce the impact on nearby development. Both vertical and horizontal mixed-use would be allowed, with the average FAR forecasted at .33 with a minimum residential density requirement of 8 du/acre foreseen. Parking regulations would mirror the Transit Corridor type guidelines, with the exception of implementing district-wide parking management.

Downtown Tigard

Currently, the land set aside for the E/R type generally consists of I-P, I-L and C-G zoning which are not conducive to developing the E/R type mainly due to restrictions placed on land uses (especially residential use) and maximum allowable building heights. Minimum and maximum parking requirements for Commercial zones are in accordance with Metro guidelines. While the maximum allotment for parking is fewer for development located adjacent to transit, there are minimum parking requirements in place regardless of the site's distance from transit. The zones currently allow for shared parking but do not contain guidelines on parking lot location and design in relationship with the street.

Tigard Triangle

The C-G and MUE zones currently occupy land that would be classified under the E/R station community type. Most of the strengths and deficiencies of these zones examined for the TC/MS type remain consistent for the E/R type. However, minimum parking requirements would only be waived for development adjacent to transit. Minimum residential density is lower for E/R than TC/MS type, although the MUE zone would satisfy both requirements. Finally, although it is unlikely that heavy industrial would be located in the Triangle, neither of the existing zones support this use.

TRANSIT NEIGHBORHOOD TYPE

The transit neighborhood station type is designed to feature the least intensive land-use of the four presented, and is to be primarily residential in character with some neighborhood commercial in the form of retail and office in strategic locations. Single-dwelling residential uses would be permitted with duplexes located on corners. Vertical and horizontal mixed-use would be allowed in some locations. The minimum residential density required is envisioned to be 12 du/acre, with an average FAR of .50. No required minimum parking would be required within proximity of a transit station.

Downtown Tigard

These areas in Downtown are currently zoned Residential, either R-4.5, R-7, R-12 and R-25, where the number refers to the maximum number of dwelling units per acre. Therefore, R-12 zoning is the minimum zone required to reach the recommended minimum density of 12 du/acre. Only R-25 and R-40 currently support commercial (in the form of sales-oriented, personal services, or repair-oriented businesses that may not exceed more than 10% total gross square feet of a multi-family building). R-40 allows for a maximum height of 60 feet, while R-25 has a maximum height of 45 feet, R-12 and R-7 have a maximum height of 35 feet, and R-4.5 has a maximum height of 30 feet. In accordance with Metro guidelines, all housing units have minimum parking standards regardless of location of nearest transit service.

TIGARD TRIANGLE

The Transit Neighborhood station community type consists of Residential zones within the Triangle ranging from R-4.5 to R-25. Of these zones, only R-12 and R-25 provides the requisite residential density while only R-25 provides the requisite mix of uses (restricted to ground-floor retail in multi-family residential buildings) to satisfy the guidelines for the Neighborhood type. There are also areas in unincorporated Washington County zoned R-5 (Low-Density Residential) and Institutional. The Institutional zone is only intended to support civic uses such as public utilities, schools or religious institutions. In accordance with Metro guidelines, all housing units have minimum parking standards regardless of location of nearest transit service.

Table B-1: Acreage of Comprehensive Plan Categories Within City of Tigard

	TOTAL	RESIDENTIAL	COMMERCIAL	MIXED-USE	INDUSTRIAL	INSTITUTIONAL	PARKS
DOWNTOWN	763.27	356.52	62.19	178.26	78.11	0.05	88.14
TRIANGLE	638.07	121.98	293.45	187.24	24.94	0	10.27
WASH SQ	449.27	98.61	0	280.67	1.89	0	68.07
SCHOLLS	265.33	229.27	21.72	0.5	0	0	12.88
GAARDE	502.57	429.44	73.13	0	0	0	0
DURHAM	181.64	115.61	56.77	0	0	0	9.21
BRIDGEPORT	353.23	52.41	20.11	7.36	242.19	4.99	26.04

CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

PUBLIC MEETING NOTES

- ***PUBLIC WORKSHOP REPORT***
- ***OPEN HOUSE REPORT***
- ***CITIZENS ADVISORY COMMITTEE (CAC) MEETING SUMMARIES***

APPENDIX 3C

TIGARD

City *of* Tigard

High Capacity Transit Land Use Plan

PUBLIC WORKSHOP

Final Report – Revised 7/19/11

As part of the Tigard High Capacity Transit Land Use Plan, the City of Tigard hosted a pair of design events on May 25 at the Tigard Public Library that asked participants to roll up their sleeves and imagine how Tigard could grow in the future. An afternoon session was attended mostly by the project's Technical Advisory Committee (city staff and staff from surrounding cities and agencies). The evening session was a public design workshop and open house.

The goals of the workshop were to:

- Discuss potential station community locations,
- Determine typologies that work best,
- Provide input on land uses and connections, and
- Create great places in Tigard.


Photo Credit: Doug Vorwaller

Workshop Description

Afternoon Session – Technical Advisory Committee Workshop

In the afternoon session, members of the Technical Advisory Committee, plus additional city staff and Tigard residents, thirty-four participants in all, examined the seven potential station communities. Using an interactive computer mapping tool, the participants explored different mixes of the four station community types and transportation improvements. The mapping program provided instant feedback on which changes would be most supportive of transit use.

Evening Session – Public Design Workshop and Open House

The evening session began with an official welcome by Mayor Dirksen. Members of the public, including the project Citizens Advisory Committee, worked in small groups with design/planning professionals to develop alternatives for land use characteristics in the seven potential station communities. Transportation improvements to support future transit investments were also suggested. Members of the public who weren't able to spend two hours at the workshop could drop in, review


Photo Credit: Doug Vorwaller

displays with project information, ask questions of staff and give their feedback on a survey. In all, there were thirty-six participants in the evening.

Typology

At both events participants were asked to apply the Tigard station community typology to potential station locations in Tigard. The four types included in the typology are described below.

Town Center/Main Street
The area has an urban village feel. Within one-half mile around the station is a mix of housing, retail, services, civic uses and office.

Employment/Retail Destination
A moderately to intensely populated station area with a land use emphasis on employment and retail activities. Other possibilities include civic buildings and colleges.

Transit Corridor
A suburban residential feel mixed with commercial uses closer to the transit corridor. Housing is in the form of townhouses and detached houses with apartments located in clusters near the corridor.

Transit Neighborhood
Moderately populated with a residential feel. Housing in the district is mainly single dwelling residential with some multi-dwelling housing mixed in.

General Results

The following main themes were identified from the notes taken at both the afternoon and evening sessions.

- Mixed-use (re)development was favored for existing large sites (Washington Square south, north of Bridgeport Village, etc.) and Downtown. Transit Neighborhood was suggested as transitional moderate-density housing (ADUs, duplexes) around new Town or Employment Centers or Corridors. Participants aimed to preserve the character of established residential neighborhoods.
- Increasing activity/density depends on getting the right connections between what's already there, as well as offering alternative routes parallel to and across Pacific Highway-99W.
- Participants focused on making/improving local connections between and within the station areas and existing neighborhoods.
- Ideas ranged from upgrading sidewalks and filling gaps to greatly expanding the street networks with new streets (especially in the Triangle and Summerfield/King City areas). Pedestrian and multi-use paths were also suggested for every station area. Parks and green spaces were considered for their connectivity function, too.

- Repeatedly, attention was drawn to the barriers that make such connections challenging, including Pacific Highway-99W, Highway 217, I-5, Scholls Ferry, Fanno Creek, other sensitive lands, steep slopes and railroads. Some very aggressive solutions were suggested for these challenges (below/above grade crossings, transforming 99W with many new intersections, etc.).

Community Specific Results

Potential Station Community Results

The alternatives created in the afternoon and evening sessions are currently being evaluated and will be presented to the Citizens Advisory Committee on August 3 and at an open house this fall. Highlights from the discussions at both the afternoon and evening events are included below.

Tigard Triangle

Afternoon

- Applied two areas of the Town Center type linked by a main street, with an increase in residents and employees.
- Added regular crossings of Pacific Highway for bikes and pedestrians

Evening

- Town Center areas on both sides of Pacific Highway
- Increased residential density near Pacific Highway
- Increased off road facilities for bikes and pedestrians
- Created large park near Hwy 217

Downtown Tigard

Afternoon

- Generally applied the Town Center/Main Street type to Downtown Tigard
- Included new transportation links for pedestrians and bicycles between Downtown and surrounding neighborhoods

Evening

- Applied the Town Center/Main Street type
- Prioritized completion of the Fanno Creek Trail and construction of a new trail along Tigard Street

Gaarde McDonald

Afternoon & Evening

- Both sessions applied the Transit Corridor type generally along Pacific Highway

Summerfield

Afternoon

- Transit Corridor type was applied along Pacific Highway
- Increased pedestrian access from King City to Pacific Highway

Evening

- Applied two separate areas of Town Center/Main Street, one centered on Pacific Highway and another on Durham Road
- Increased east-west connections for bikes and pedestrians
- Created two new parks

Washington Square

Afternoon

- Applied the Employment/Retail type generally near the mall with Transit Corridor applied to SW Greenburg Rd.
- Worked to improve the area for pedestrians in employment areas
- Created new parks in the western portion of the community

Evening

- Focused on area east of Washington Square Mall
- Created a new Town Center east of Greenburg Rd.
- Added new walk/bike connections within employment areas and connecting to residents

Scholls Ferry/121st

Afternoon

- Retained existing retail/commercial areas with improved pedestrian access.
- Transit Corridor applied to Scholls Ferry Road
- Some Transit Neighborhood applied to both sides of 121st Ave.
- Improved bike and walking routes
- Created some additional parks and open space

Evening

- Maintained current land uses into the future
- Focused on improving bike and walking routes

Bridgeport

Afternoon

- Applied two areas of Town Center/Main Street on 72nd Avenue
- Limited transportation changes
- Created substantial increase in parks and open space

Evening

- Applied Transit Corridor type along 72nd Avenue, Town Center/Main Street type at the intersection with Durham Road
- Recommended minor transportation changes connecting roadways to neighborhoods
- Created some increase in parks and open space

City *of* Tigard

High Capacity Transit Land Use Plan

Open House Report

The City of Tigard held a public open house on September 28, 2011 in the Tigard Public Library. The purpose was to present draft concepts of potential areas for growth and improved public transit. The concepts for each area were developed by community members with support from project consultants and staff though a land use planning process that included 45 stakeholder interviews, two public design workshops on May 25 and direction from the Citizens Advisory Committee.

Stakeholders reviewed concepts for potential neighborhood station communities.

This work developed a set of desired neighborhood types appropriate to the scale of expected growth in Tigard. (Visit www.tigard-or.gov/hct for more information or email judith@tigard-or.gov.)

The results of this planning process, known as the High Capacity Transit Land Use Plan, were presented at the open house. Seventy people attended and were asked their opinion about the type of growth envisioned for each one of seven potential station communities.

For each area the attendees were asked:

- Center of Intensity: Is the center of activity located in about the right place?
- Primary Community Character: Do the character and mix of activities seem like the right fit for the future of Tigard?
- Transportation Improvements Identified: Do the suggested transportation investments reflect the right priorities for this area?

Results

General

Overall, several themes emerged from the feedback provided at the open house. The following themes were identified from written feedback forms, notes taken by staff during the event and follow-up emails.

- The congestion on Hwy 99W makes crossing it difficult for pedestrians, bicyclists and motorists. It also hurts business.
- Improvements in public transit connections are needed in all areas.
- Existing residential neighborhoods need to be preserved and supported.
- Natural areas are vital and more are needed.
- Our communities need to work well for retired people too.

Tigard, Portland and Metro staff talked with citizens about the SW Corridor Plan

Community Specific Results

Below is a summary of comments from the open house. Descriptions of the station community types are in the Appendix.

Proposed Station Types

Corridor | Neighborhood | Employment / Retail | Town Center / Main Street

Tigard Triangle

The Triangle concept seeks to blend smaller scale retail shops, restaurants and housing with the current employment center. Is the center of intensity or activity, east of SW 72nd Avenue, in the right location?

- Tigard needs more jobs and the Triangle is a good place for them. It also needs more places for those employees to eat.
- High density is appropriate for the Triangle.
- The Triangle might be better for a Tigard Town Center than downtown. Parts of the Tigard Triangle are easier to access and have more potential for new development than Downtown.

Is this the type of growth or primary community character ---Town Center/Main Street--- that we want to preserve and encourage?

- There are market challenges to multi-use buildings, but housing is needed.
- A lot of the Triangle is dilapidated and underutilized with streets in poor condition.
- The Triangle does not seem well planned.
- It will need parks if the area is to develop. Open space in a neighborhood is important; preserve and enhance Red Rock Creek.

Were the priority transportation improvements identified?

- Congestion is hurting business. Sidewalks are needed.
- Continue improvements to SW 74th.

Downtown Tigard

Main Street would be the center of intensity, characterized by a pedestrian-friendly environment that complements current retail businesses with close-by residential and office employment opportunities. Is this the right location?

- Yes, it is properly located.

Is this the type of growth or primary community character --- Town Center/Main Street --- that we want to preserve and encourage?

- Enhance with infill and give more thought to buffering the natural areas.

Were the priority transportation improvements identified?

- Better mobility is needed for all modes, especially for pedestrians and public transit, including lighting the path on Fanno Creek.

Gaarde McDonald

The center of intensity will be where Pacific Highway crosses Gaarde-McDonald. The concept retains the general commercial and residential uses and includes housing options and office/employment as a complement to existing retail. Is this the right location for this focus of activity?

- Perhaps. The "people center" might be closer to Park and Walnut.

Is this the type of growth or primary community character --- Transit Corridor --- that we want to preserve and encourage?

- Focus should be on business activity that will encourage regional travelers to stop and residents to stay.

Were the priority transportation improvements identified?

- Better mobility is needed for all modes, especially on 99W.
- There are so few riders on WES and no midday service. With more baby boomers retiring we could use more public transportation.

Summerfield

The center of intensity at SW Durham Road and Pacific Highway would be focused on the current commercial properties, with some mix of residential options and non-retail employment. Is this the right location?

- Yes, it's properly located. Use the best features of current configuration but make strategic improvements to increase livability.

Is this the type of growth or primary community character --- Transit Corridor & Town Center --- that we want to preserve and encourage?

- The mix and change in look is a good fit.
- We need to accommodate both working and retired residents.

Were the priority transportation improvements identified?

- We need the improved circulation and pedestrian routes.
- We need better access to public transportation.

Washington Square

The center of intensity on the east side of Highway 217 at Greenburg Road would provide a stronger pedestrian environment and a transition from large commercial areas to the residential neighborhood. Is this the right location?

- No comments taken.

Is this the type of growth or primary community character --- Employment/Retail --- that we want to preserve and encourage?

- Durable features need to be maintained.

Were the priority transportation improvements identified?

- Would like to see a new WES station with a pedestrian bridge to the mall.

Scholls Ferry/121st

The center of intensity for this concept is the existing commercial area between SW 121st and 125th along Scholls Ferry Road. Is this the right location?

- No comments taken.

The existing commercial areas are envisioned as the Transit Corridor type, reflecting its current character but adding an emphasis on the pedestrian environment. Is this the type of growth or community character that we want to preserve and encourage?

- No comments taken.

Were the priority transportation improvements identified?

- Need to improve pedestrian routes, for example, increase lighting on Fanno Trail and remove fences around shopping centers that are obstacles.

Upper Bridgeport

The center of intensity would be east of SW 72nd Avenue, building on the existing pattern of smaller blocks with active sidewalks and a high mix of retail, employment and residential activities. Is this the proper location?

- For vehicles yes, but not for people.

Is this the type of growth or primary community character ---Employment/ Retail with increased housing options and neighborhood supportive retail --- that we want to preserve and encourage?

- This area should be retained as light industrial/office.

Were the priority transportation improvements identified?

- The area has good bike and pedestrian access but poor public transportation. It needs better transit connections to downtown Tigard and Tualatin.
- Needs a new WES station behind Bridgeport.

Tigard's High Capacity Transit Land Use Plan was funded by a Transportation Growth Management Grant from the Oregon Department of Transportation. It is part of the regional process to plan for community investments in the Southwest Corridor that could include roads, sidewalks, bike lanes, access to nature and public transit. Visit www.swcorridorplan.org to find out more about the Southwest Corridor Plan and how you can get involved.

Many families stopped by to add their perspective to the planning process.

Business people and homeowners gave their input for each potential station community.

Appendix: Station Community Typology

Each potential station community was described as being a combination of 1-4 community types. The four scenarios, or types, are described below. Visit www.tigard-or.gov/hct for more information or email judith@tigard-or.gov.)

Town Center/Main Street
The area has an urban village feel. Within one-half mile around the station is a mix of housing, retail, services, civic uses and office.

Employment/Retail Destination
A moderately to intensely populated station area with a land use emphasis on employment and retail activities. Other possibilities include civic buildings and colleges.

Transit Corridor
A suburban residential feel mixed with commercial uses closer to the transit corridor. Housing is in the form of townhouses and detached houses with apartments located in clusters near the corridor.

Transit Neighborhood
Moderately populated with a residential feel. Housing in the district is mainly single dwelling residential with some multi-dwelling housing mixed in.

City of Tigard

High Capacity Transit Land Use Plan Citizen Advisory Committee
[HCT Land Use Plan CAC]
MEETING SUMMARY

Wednesday, January 5, 2011, 6:30 PM – 8:30 PM
Tigard Library 2nd Floor Conference Room- 13500 SW Hall Blvd, Tigard, Oregon

MEMBERS PRESENT: Christopher Warren; Dennis Mitchell; Don Fox; Mike Stevenson; Steven Bass; Karen Hughart; Kim Moreland; Patti Anda; Sheila Greenlaw-Fink

MEMBERS ABSENT: Jennifer Stanfield; Basil Christopher (attended the TAC earlier in the afternoon); Maureen Wolf

OTHERS PRESENT: Jason Franklin, Parametrix Consultant; Crista Gardner, Metro; Don Schmidt, Planning Commissioner

VISITORS: Tim McGilvrey; Phil Pastoris

STAFF PRESENT: Ron Bunch, Community Development Director; Marissa Daniels, Associate Planner; Sean Farrelly, Redevelopment Project Manager; Judith Gray, Sr. Transportation Planner; and Doreen Laughlin, Sr. Administrative Specialist

1. Call to Order – Welcome and Introductions – Jason Franklin

The meeting was called to order at 6:37pm. Jason Franklin facilitated the meeting. He asked everyone to introduce themselves and say what they liked about living or working in Tigard – which they did. He then briefly went over the agenda for the evening.

2. Project Overview – Sean Farrelly & Crista Gardner

Sean Farrelly, Redevelopment Project Manager, gave an overview regarding the Southwest Corridor. He noted the project would not determine the mode of HCT – that will be done in the Alternatives Analysis. Also – it will not determine the exact alignment. It will inform the analysis but not determine it. He spoke about the Tigard 99W Corridor Urban Design Vision.

Crista Gardner, of Metro, gave an overview of how Metro will be involved in this project. She went over an outline of coordinated SW Corridor Plans that the committee members had received in their packets. She

noted the SW Corridor is a high priority to study for the region. She said the Corridor Refinement Plan is multi-modal. She said they had just won a grant of 2 million dollars to fund an Alternatives Analysis Study.

3. Role of the Committee – Jason Franklin

Jason reminded the committee members that the purpose of the CAC is to make recommendations to City Council. He spoke about the mission of the committee. He said it is hoped that the committee will interact with the general public and help to educate people – to converse with them about these things. He went over the ground rules which were in the packet that had been sent out for their review. He asked that acronyms be kept to a minimum or at least to be sure to explain what they are if they are used. There are only four formal CAC meetings scheduled. Jason asked that the committee members try their best to attend; however, if they can't make a meeting, to be sure to look over the material and make any comments they may have known to staff. He noted they are looking for a general consensus but if there is a split group they may take a vote, or even a majority and minority vote and report that back to City Council.

4. Review of Schedule and Deliverables – Jason Franklin

Jason noted that another committee is also meeting on this project – the Technical Advisory Committee. He then went over the High Capacity Transit Land Use Plan Project Schedule and Key Deliverables which was included in the committee member's packets. He spoke a bit about the idea of "typologies" and how they work. The committee would be invited to help in the scheduled Project Design Workshop. In the evening of that workshop there would be a public event and he said it's key that the committee be there, if at all possible, to interact on behalf of the project. In late October, there will be an open house and the group will get together sometime after that - which will be the last HCT Land Use Plan CAC meeting. He noted this is a fairly aggressive timeline.

5. Committee Discussion – Jason Franklin

Jason opened up the meeting for committee members to discuss various concerns and ideas. There were some questions as to whether money is part of the equation. It was noted the alternatives analysis would include looking more closely at the money aspect. There was some concern about bus service and the fact that there is none to Bull Mountain. It was suggested that PCC be incorporated into the plan somehow. There was some discussion as to HCT taking capacity away from Hwy 99W or the land use side of it. There was discussion about the phasing of the plan. What happens between now and the completion of it? Some concern was expressed about parking lots for transit being sprawling and land consuming. The idea of parking structures was brought up and the pros and cons of those types of structures were discussed. The possibility of positive economic development was talked about. There was a question as to why the corridor is referred to as being a "1/2 mile" swath. Crista, from Metro, explained the thinking on that subject – the fact that they're not looking at a particular road but also the areas around those roads and different ways transportation interacts.

6. Public Involvement Activities – Marissa Daniels

Marissa spoke about the kinds of public involvement happening outside the regular scope. Cityscape articles, website usage, and other "typical" kinds of involvement will happen. In addition to those, one new way of reaching people is by reaching community leaders – and those leaders being identified by other citizens. There is an "HCT Team" in the process of being formed. It will not end with this project, but is hoped to continue on with some continuity. As for new outreach opportunities – the HCTCAC meetings are being video-taped and will be available to the public; there may be an email newsletter; there are stakeholder interviews going on. The information from those interviews will be shared. Another method of outreach is a webpage on the City

Website dedicated to the HCT Land Use Plan at: http://www.tigard-or.gov/hct. Ron Bunch, Community Development Director, noted this project is a very high priority so far as the City Council is concerned.

7. Next Meeting Objectives/Adjourn – Jason Franklin

Among other things, "typologies" will be discussed at the next meeting which will be held on Wednesday, March 2nd at 6:30pm. Jason adjourned the meeting at 8:27pm.

Doreen Laughlin, HCT Land Use Plan CAC Secretary

City of Tigard

High Capacity Transit Land Use Plan Citizen Advisory Committee
[HCT Land Use Plan CAC]
MEETING SUMMARY

Wednesday, March 2, 2011, 6:30 PM – 8:30 PM
Tigard Library 2nd Floor Conference Room - 13500 SW Hall Blvd., Tigard, Oregon

MEMBERS PRESENT: Basil Christopher, Sheila Greenlaw-Fink, Christopher Warren, Don Schmidt, Mike Stevenson, Steven Bass

MEMBERS ABSENT: Jennifer Stanfield, Maureen Wolf, Kim Moreland, Dennis Mitchell, Don Fox, Karen Hughart, Patty Anda

OTHERS PRESENT: City Council Liaison, Nick Wilson;
Consultants: Crista Gardner, Metro; Jason Franklin, Parametrix; Marcy McInelly, Urbsworks;
Citizens: Marland Henderson; Elise Shearer; Ruth Harshfield

STAFF PRESENT: Judith Gray, Sr. Transportation Planner; Sean Farrelly, Redevelopment Project Manager; Tim Lehrbach, Planning Assistant; Twila Willson, Recording Secretary; Ron Bunch, Community Development Director (arrived at 6:48 p.m.)

1. **Call to Order (Jason)**

   - **Welcome and Introductions** – The meeting began at 6:34 pm and was led by Jason Franklin.

   - **Consider the January Meeting Summary** – Jason Franklin asked if there were any additions, deletions, or corrections to the January 5, 2011, meeting summary; there being none, declared them approved as submitted.

   - **Visitor Comments: None**

2. **Meeting Purpose (Jason)**

   - **Meeting Scope** – The focus of the meeting is to get to know Tigard as well as to gather ideas for the study. A meeting with the Technical Advisory Committee (TAC) was held earlier in the day. The meeting materials and discussion are geared to create a foundation to locate potential station locations

and to identify land use characteristics through the HCT Land Use Plan. The intent is to build upon these ideas for future meeting presentations.

- **Review & Comment process (See attachment) –** Comments are still being gathered and should be submitted to Judith before March 9. Comments will be incorporated and a final report will be provided to the CAC; subsequent comments will be compiled and incorporated, or presented at a future meeting if needed.

3. **Stakeholder Interview Summary** – Judith told everyone that the meeting was being video-taped and would soon be available for viewing on the City's website. She briefly referred to the goldenrod memo directed to the Project Team, dated March 2, 2011, entitled Stakeholder Interview Report. City staff interviewed about 45 stakeholders about the types of places they like and don't like, and improvements they would like to see. The document would be referred to later in the meeting by Marcy.

4. **Review Technical Reports**
   - **Existing Conditions Summary (Jason) –** Jason explained that they are looking for a general sense of existing conditions in Tigard. The report is created to help identify potential locations for station communities. Six topics are addressed in the report which identified the opportunities and constraints of each topic: transportation; land use; natural resources; parks and open spaces; utilities; market assessment.

     Snapshots of existing Tigard areas of focus were reviewed. The purpose of the snapshots is to help focus on potential station communities for purposes of discussion.

     Judith said the technical memos are being reviewed by the TAC and were not distributed to the CAC. The CAC received the summary report; the larger report is available upon request.

     Group Discussion:
     - In the area snapshots, the report notes "Amenities per Square Mile" and indicates that they have a "positive impact on residential pricing." This is misleading. For example, it shows Pacific Highway 99W as an area with a high density of urban amenities. But much of this area is blighted.

   - **Project Objectives & Criteria (Crista) –** This portion of the presentation focused on the middle section of pages 5 and 6 of the Existing Conditions Report listing the goals and objectives. These over-arching objectives answer the question, "What is wanted with each accomplishment?"

     The team is still working on this section. They are still considering input and seeking criteria that will be measurable.

   - **Tigard Typologies (Marcy) –** This portion of the presentation asks the question, "What makes a great place?" and focuses on imagining a place that may exist or is an amalgamation of places.

The presentation described the characteristics of different potential station community types, land use mixes, and what each type emphasizes. It described transportation in all these areas, with walk-ability as a big priority for Tigard. The look and feel of the place was highlighted. Metro's 2040 Growth Concept plan is referred to in the report.

Marcy reminded the group that that these are imaginary places and could occur with or without high capacity transit. The question to the group was: Were the station community types described right for Tigard? Did the typology address all the characteristics of good places?

Group Discussion:

- How does Tigard build these typologies without rebuilding the entire community?
- Parking, including Park-and-Ride needs to be included in typologies. Accessibility and convenience need to include autos, parking, etc. but all the emphasis is on bike, pedestrian, and transit.
- Parking - Utilization of public transportation would be taken better advantage of if parking were better. Some residents will need parking in order to access transit.
- Parking demands are connected with transit needs. Destination locations have differing parking demands.
- Should consider typologies other than the four presented, i.e. retirement community, student village (with George Fox or PCC); industrial employment.
- Remember that 50% of traffic on Pacific Highway is through traffic --- commuters
- The surface transportation system needs to be fixed to get people to HCT. Absence of a good street grid is a limitation.
- Typology is a new approach to best fit with land use and right of way. The beginning of a long process of blending areas.
- How does cost play into this type of planning?
- The UO Vision document that was done for Pacific Highway is very creative, does a good job working with the contours of the terrain.
- How to balance the needs/wishes of current residents or an aspiration for future growth? Lots of families would like to get out of their cars, not have to own 2-3 vehicles.
- Great opportunity for Tigard to say what it wants that can be blended with the corridor needs.

5. **Meeting Wrap Up (Jason)**

Upcoming meetings:
May 25 - workshop in the Community Room with more sketch ideas and an evening public outreach meeting
August 4th - next regular HCT Land Use Plan CAC meeting
Final CAC meeting - TBA for early winter

Continue to look at typologies and existing conditions summary; get comments to Judith by next Wednesday. Wrap up information will be posted for review soon.

6. **Adjourn**

The meeting was adjourned at 8:29 pm.

Twila Willson, HCT Land Use Plan CAC Secretary

City of Tigard

High Capacity Transit Land Use Plan Citizen Advisory Committee
[HCT Land Use Plan CAC]
MEETING SUMMARY

Wednesday, August 3, 2011, 6:30 PM – 8:30 PM
Tigard Library 2nd Floor Conference Room - 13500 SW Hall Blvd., Tigard, Oregon

MEMBERS PRESENT: Steve Bass, Shelia Greenlaw-Fink, Dennis Mitchell, Kim Moreland, Don Schmidt, Jennifer Stanfield, Mike Stevenson, Maureen Wolf

MEMBERS ABSENT: Basil Christopher, Christopher Warren, Don Fox, Karen Hughart, Patty Anda

OTHERS PRESENT:

Consultants: Crista Gardner, Metro; Jason Franklin, Parametrix;
Citizens: Elise Shearer; Richard Shavey, Ric Stevens, Andrew Holavetzki

STAFF PRESENT: Judith Gray, Sr. Transportation Planner; Sean Farrelly, Redevelopment Project Manager; Mike McCarthy, Sr. Project Engineer; Debbie Smith-Wagar, Assistant Finance Director; Marissa Daniels, Associate Planner; Tim Lehrbach, Planning Assistant; Liz Lutz, Recording Secretary

1. **Welcome and Introductions**

   Judith Gray called the meeting to order. All in attendance introduced themselves. The group approved the Meeting Summary for the March 2 CAC meeting #2.

   Judith reviewed the packet distributed to committee members and reminded them of the new schedule—meeting #3(B) on September 7 and an Open House on September 28. She also explained the scope of this meeting: to review the alternatives for the seven potential station communities and to give feedback to project staff. The object of the review and feedback is to move towards agreement among the group on the preferred alternative for each station community. Judith added that the CAC will remain informed about the progress of the Southwest Corridor Plan and invited further participation as the SW Corridor Plan moves forward.

   Jason Franklin invited comments from any visiting members of the public, and there were none.

2. **Project process overview**

   Jason summarized the process for evaluating the station community concepts (developed by the two design workshops—afternoon and evening—and the project consultants) to determine which would be brought forward as alternatives. The report distributed to committee members explains this process in

more detail and is intended as a tool for discussion. One committee member observed that the colors representing the typology in the alternatives are confusing. Staff responded that this could be improved.

3. Concept Alternatives Discussion

The group then discussed and evaluated the alternatives for three potential station communities: Gaarde/McDonald/99W, Scholls Ferry/121st, and Upper Bridgeport. A summary of each discussion follows.

Pacific Hwy/Gaarde/McDonald

An overview of the lone alternative for this potential station community was given. Only one alternative was brought forward because the three concepts (afternoon, evening, and consultant) were all similar enough that the consultant alternative was determined to carry the critical features of the other two. In this alternative, the Transit Corridor type was applied along most of Pacific Hwy in the area, backed by targeted applications of the Transit Neighborhood type. New park and open space development was proposed along Gaarde St.

Comments/Discussion:

- Alternative is not dramatically different from what's on the ground, just more intense uses on Pacific Highway.
- Is there enough intensity to support HCT? Is this a great location for HCT?
- New connections are difficult to make because the area is built out, but one could be formalized between Gaarde and Bull Mountain.
- Congestion to the south is a major problem.
- Low-density residential covers most of this area.
- The consultant alternative matches what the evening session came up with closely.
- Beef Bend Road is important access for neighborhood to west and south (130th, 150th).
- The lines representing bike and pedestrian connections are unclear. (Staff reponse: the lines represent some connection or improvement for bikes or pedestrians but are not specific suggestions.)
- Distinguish between existing sidewalks/facilities; needs improvements; and total gaps in network. (Staff response: refinement process will lead to suggesting specific improvements, at this point we just need to know where the need is.)
- Not enough transportation improvements; need more bike/ped connections at Gaarde/McDonald.
- Connections to schools are important.
- It is important to account for community amenities, open space, schools, churches, and to create access to these assets.
- To make this transit friendly, you want to find ways to ease crossing Pacific Highway, tame traffic, etc., yet Pacific Highway is a state highway for through traffic and freight mobility, so there are competing needs here.
- Grade changes are significant in this area and must be considered when imagining connections.
- Could be a better mix of uses: more employment and intensity.
- Why not continue Transit Neighborhood application SE from the intersection, where there is already multi-family housing? (Staff reponse: where the typology was not applied, it was decided that there doesn't need to be much change because it's already suitable or because it's so well established.)

- Any development that goes in here is going to deal with a busier 99W, and it's hard to plan for that.
- Not enough connections between existing development and adjacent (behind) residential.
- Break up large blocks and make connections.

Scholls Ferry/121st

Jason gave an overview of the two alternatives. Both the afternoon and evening alternatives focused on improving Scholls Ferry Rd. to better connect surrounding neighborhoods to each other, to the Greenway Town Center, to schools, and to parks and open spaces (especially the Fanno Creek Trail). The afternoon alternative proposed modest increases in the intensity of land uses at the Greenway Town Center (including allowing for residential uses), while the evening alternative did not apply the typology to any portion of this station community. The afternoon alternative also considered existing open spaces along the Fanno Creek floodplain for possible improvement.

Comments/Discussion:

- Types applied during the afternoon session were ways that the existing development could be promoted to increase intensity of activity, mostly leaving the area alone.
- This location would primarily serve the neighborhoods; the other potential station areas would be attracting people from outside of the area. It's hard to envision it developing any more intensely than it already is; don't see much of a change at all.
- Progress Ridge is located up the street; that has more draw from outside the area.
- It's important to know what "existing" means when comparing the INDEX numbers in the evaluation report. (Staff response: existing means a full build-out of existing zoning.)
- This is not a high-priority area. It works well as it is.
- This area is an important connection between other points east and west. Transit Corridor could be an appropriate density for Scholls/121st. It might handle some additional multi-family housing.
- Allowing residential development at Greenway Town Center might have negative impacts on 121st/123rd.
- Beaverton's plans for this area need to be understood as well.
- Natural amenities preservation is very important, another reason it is hard to see major changes in this area.
- Poor connectivity to commercial properties (as at Gaarde) from neighborhoods. You have to get out on Scholls, in a car, to get to nearby services. Changes suggested as part of this project could require future redevelopment to address this type of connection.

Upper Bridgeport

Jason gave an overview of the two alternatives for this potential station location. The afternoon alternative mostly preserves the employment/light industrial character of the area, with applications of Town Center type at the 72nd/Upper Boones Ferry Road intersection and south of Durham Road to Bridgeport Village. The evening session proposes a substantial Town Center type application between 72nd Avenue, Boones Ferry Road, and Bridgeport Village and makes 72nd Ave. a significant services corridor for the area.

Comments/Discussion:

- Dark green "proposed parks" shown between Fanno Creek and the railroad are errors. These should be left as existing.
- Creating new connections across the railroad may be unrealistic.

- 72nd Avenue is too important for access to increase land use intensity much.
- Intense residential development is incompatible with the current land uses and transportation needs on 72nd, Durham.
- We have enough retail destinations in Tigard; why focus on that here, too?
- One property owner has a lot of the land in this area. Their plans and needs for their property have to be considered.
- We need to increase housing options; the majority of employees in Tigard cannot afford to live in Tigard.
- There is the potential to add residential above the business uses in this area.
- The number of jobs in this area is a strength and it makes sense to keep this as an employment area to preserve the benefits to the community.
- There are good ideas here, hut this doesn't seem like the best place for an HCT station.
- The bigger picture would take into account how much housing we have to take on and where it should go.
- It would be good to be able to look at all the areas against each other, compare financial feasibility, examine where housing, employment, etc. should logically go in Tigard.
- A WES station would make a lot of sense. Otherwise, the railroad separates the uses too much.
- Perhaps a WES station at Bridgeport Village?
- Higher density by Bridgeport can work, but residential doesn't make sense in the light industrial area. 72nd won't develop that way, and there's no reason for it to.
- The afternoon alternative works but could use some parks expansion.
- The area is already zoned for mixed-use employment and mixed-use residential. The afternoon alternative with some added residential could be the right step forward.
- Increase residential density farther south, while keeping light industrial character of 72nd.

Meeting wrap up

Jason wrapped up the meeting, reminding the committee that discussion on the remaining four station communities would continue at the September 7 meeting #3(B).

The meeting was adjourned at 8:30 pm.

City of Tigard

High Capacity Transit Land Use Plan Citizen Advisory Committee
[HCT Land Use Plan CAC]
MEETING SUMMARY

Wednesday, September 7, 2011, 6:30 PM – 8:30 PM
Public Works Auditorium, 8777 SW Burnham St., Tigard, Oregon

MEMBERS PRESENT: Steve Bass, Shelia Greenlaw-Fink, Dennis Mitchell, Kim Moreland, Don Schmidt, Jennifer Stanfield, Mike Stevenson, Basil Christopher, Christopher Warren, Don Fox

MEMBERS ABSENT: Maureen Wolf, Karen Hughart, Patty Anda

OTHERS PRESENT:

Project Team: Crista Gardner, Metro; Jason Franklin, Parametrix; Marci McInelly, UrbsWorks
Citizens: Elise Shearer; Richard Shavey

STAFF PRESENT: Judith Gray, Sr. Transportation Planner; Sean Farrelly, Redevelopment Project Manager; Marissa Daniels, Associate Planner; Liz Lutz, Recording Secretary

1. **Welcome and Introductions**
   - Judith called the meeting to order. Committee members were invited to introduce themselves. August meeting summary provided. Committee invited to note any changes within a week to be included before posting to project web site.

2. **Project process overview**
   - Jason summarized the process for evaluating the station community concepts (developed by the two design workshops—afternoon and evening—and the project consultants) to determine which would be brought forward as alternatives. The report distributed to committee members explains this process in more detail and is intended as a tool for discussion.

3. **Concept Alternatives Discussion**
   - The group discussed and evaluated the alternatives for four potential station communities: Washington Square, Summerfield/King City, Tigard Triangle and Downtown. Comments heard for each of the discussion areas are summarized below:

Washington Square

- Add housing; not just retail/employment
- Add mixed use/intensity
- Incentivize housing near high employment area-more than 5,000 units-most unbalanced regional center today
- Bike/pedestrian connections through Lincoln Center
- Town center - center of intensity
- Have to integrate the mall
- Freeway creates a barrier-so doesn't make sense to extend across
- Access of west single family neighborhood
- Low hanging fruit-change easier in some places (past prime) like Lincoln Center
- Washington Sq. draws the users (others out-competed)
- Connections to neighborhood - bike/pedestrian
- Access to WES difficult

Summerfield/King City

- Connection to UBG extension at West Bull Mountain
- Connections from golf course to river to neighborhood to grocery to 99W-schools
- Dead ends create barriers
- Durham logical choice for center-road connection from I-5 home. I pick up dinner/groceries
- Town center "spine" small scale-but concern about congestion
- Needs better pedestrian connections
- Residential at mobile park is a lifestyle choice; could lose affordable housing opportunity if changed
- Need input of Summerfield, King City, mobile park
- View to river? Access to river/ 113th?
- Affordable housing slow to rent out.

Tigard Triangle

- Add restaurants, housing =a neighborhood? People stay after dark; not just glass & computers
- Should be an "18-hour" place
- 72nd is good for high density; could be a focus area for a town center
- Costco area – potential employment/retail
- Plenty of employment near I-5 already
- Issue and asset of freeway on/off ramp
- 69th; possible focus area town center
- Already has assets; theater, Winco
- 99W: make permeable; softer edge like Martin Luther King Jr. Blvd in Portland; neighborhood north of 99W = transit desert, strip mall barriers
- "Boulevard" concept, not "highway" concepts; make crossable to allow transit to grocery store on either side.
- Pacific Highway is a really hard line (barrier); add gondola/pedestrian separated bridge
- Residential north of 99W – two areas in Tigard Triangle recognized hard line; -depends on crossings created by HCT stop location
- Concept=garage (Costco) ; front door (72nd)

Downtown

- Put more density in downtown
- Add transit center east of Hall
- Connect Hunziker to Burnham over railroad
- Focus area; within barriers (like 99W and Hall); downtown; town center
- WES connection already their
- Downtown circulation plan
- Urban renewal area
- Residential expanded; walk to downtown; other side of Hall
- Industrial won't turn over soon
- Aqueduct is a break in 99W barrier; use it to expand access and town center
- Corridor type along 99W
- Green is good
- Move farmers market downtown

Meeting wrap up

The meeting was adjourned at 8:45pm.

City of Tigard

High Capacity Transit Land Use Plan Citizen Advisory Committee
[HCT Land Use Plan CAC]
MEETING SUMMARY
DRAFT

Wednesday, November 2, 2011, 6:30 PM – 8:00 PM
Tigard Library Community Room, 13500 SW Hall Blvd., Tigard, Oregon

MEMBERS PRESENT: Steve Bass, Shelia Greenlaw-Fink, Dennis Mitchell, Don Schmidt, Mike Stevenson, Basil Christopher, Christopher Warren, Don Fox, Karen Hughart

MEMBERS ABSENT: Patty Anda, Jennifer Stanfield

OTHERS PRESENT:

Project Team: Crista Gardner, Metro; Jason Franklin, Parametrix; Marci McInelly, UrbsWorks
Citizens: Elise Shearer

STAFF PRESENT: Ron Bunch, Community Development Director; Judith Gray, Sr. Transportation Planner; Sean Farrelly, Redevelopment Project Manager; Marissa Daniels, Associate Planner; Mike McCarthy, Senior Project Engineer; Carissa Collins, Senior Management Analyst; Caren Frykland, Recording Secretary; Bob Kellett, Planning Assistant; Leslie Hildula, Planning Assistant

1. **Welcome and Introductions**
   - Judith called the meeting to order. Committee members were invited to introduce themselves. October meeting summary provided. Committee invited to note any changes within a week to be included before posting to project web site.

2. **Project process overview**
   - Marissa explained how the discussion and voting on preferred station community plan would work. For each station community plan, community members were asked to choose one of the following:
     - I am comfortable advancing this concept
     - I would be comfortable advancing this concept if _____
     - I am not comfortable advancing this concept

3. **Preferred Station Community Plans Discussion**
   - Jason provided a brief overview of the preferred station community plan. After each overview, committee members were asked if they were comfortable advancing the concept. Below are the comments from each station community plan.

Scholls Ferry Road/121st Avenue

- All 9 committee members were comfortable advancing the concept.

Downtown

- All 9 committee members were comfortable advancing the concept.

Tigard Triangle

- 6 committee members were comfortable advancing the concept. 3 committee members were comfortable advancing the concept with comment:
    - The plan needs more to address the lack of transit connectivity with the neighborhood to the north.
    - How would high density-housing-mixed use be encouraged?
    - The amount of housing in the concept seems excessive.

Summerfield/King City

- 8 committee members were comfortable advancing the concept. 1 committee member was comfortable advancing the concept with comment:
    - It is unrealistic to expect people to walk across 99w. Why focus a transit community there? The focus should be around Durham.
    - How does the evolution from current land use to what is in the plan take place? What will it take to make the Albertsons strip mall, for example, something better suited for a transit oriented community?

Washington Square

- 6 committee members were comfortable advancing the concept. 3 committee members were comfortable advancing the concept with comment:
    - Sears should be part of the employment/retail typology.
    - The pedestrian connection proposed crosses a wetland. Need to add a pedestrian connection for SE neighborhood to reach station.
    - We need to promote more housing here. The area is rich with jobs.

Pacific Highway/Gaarde-McDonald

- 9 committee members were comfortable advancing the concept. Comment:
    - Why not encourage more density?

Upper Bridgeport

- 9 committee members were comfortable advancing the concept.

4. **Meeting wrap up**

Marissa and Judith discussed the next steps in the process. Station concepts will go to planning commission and eventually City Council. Additionally, staff and community members will be involved in SW Corridor Plan efforts. Chris Warren and Shelia Greenlaw-Fink volunteered to be CAC representatives to SW Corridor Plan. Tigard Connects kickoff scheduled for January 30, 2012.

The meeting was adjourned at 7:50pm.

CITY OF TIGARD

CONCEPTS FOR POTENTIAL STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

EXISTING CONDITIONS TECHNICAL MEMORANDA: LAND USE AND TRANSPORTATION

APPENDIX 3D

TIGARD

Parametrix ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

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MEMORANDUM

Date:	February 22, 2011
To:	Project Management Team
From:	Reza Farhoodi and Jason Franklin - Parametrix
Subject:	Existing and Planned Land Uses Chapter
cc:	
Project Number:	277-2395-078
Project Name:	Tigard High Capacity Transit Corridor Land Use Plan

The City of Tigard, Oregon is located in Washington County, situated in the southwest portion of the Portland metropolitan area and lies within the Tualatin Valley. Tigard abuts Beaverton, King City and Durham and is served by major transportation routes including Interstate 5, Highway 217, Pacific Highway-OR 99 and Scholls Ferry Road. Tigard city limits are approximately 15 minutes from Portland City Center by automobile. Major destinations within the city include Downtown Tigard, Washington Square mall, and the Tigard Triangle employment area between I-5, OR 217 and OR 99W (Pacific Highway).

First settled in the 1850s, Tigard experienced growth after the arrival of the Oregon Electric Railway (OE) in 1910, and the completion of the Pacific Highway in the 1920s. It remained primarily rural in character until the postwar period when Interstate 5 was constructed adjacent to the city. From that time, the city has grown from a population of 6,499 (1970) to 47,460 (2009) residents, with a citywide population density of 3,795 persons per square mile. I-5 forms the majority of the eastern boundary of the city (as well as the boundary of Washington County), with the Tualatin River forming a portion of the city's southern boundary. The city was incorporated in 1961 and has undertaken several annexations since that time, and now has a total land area of 10.9 square miles. Future urban growth area, known as Areas 63 and 64, are found to the west of Tigard. In addition to the population within the city limits, there are several thousand people living in unincorporated areas surrounding the city, including Bull Mountain and Metzger that are within Tigard's Urban Services Area.

Main Street's identity as Tigard's center dates from the construction of the OE commuter line. Rapid growth occurred around Main Street in Tigardville (as it was then known). Many commercial buildings were constructed which housed such businesses as restaurants, grocery stores, a dance hall, a blacksmith and a livery stable. In 1940, an overpass for Pacific Highway-OR 99W was built just north of Main Street. Much of Tigard's new development moved away from Main Street and towards commercial strips along Pacific Highway and elsewhere.

The city is served by a number of TriMet bus routes, including the Frequent Service #12 route which travels along Pacific Highway-OR 99W in Tigard en route between Sherwood to Gresham. The Westside Express Service commuter rail opened along the Portland and Western Railroad (PNWR) in early 2009 with a station in Downtown at the Tigard Transit Center.

The Tigard High Capacity Transit (HCT) Corridor Land Use Plan is a component of a larger Southwest Corridor Plan. The Tigard HCT Land Use Plan will examine existing and planned future land uses within Tigard and along

Pacific Highway-OR 99W, create station community typologies and inform the decision of where to locate the potential future high-capacity transit service in Tigard. The future Southwest Corridor Transit Alternatives Analysis will analyze different HCT routes, alignments, station locations and the transit mode. High capacity transit modes include bus rapid transit, rapid streetcar, light rail and commuter rail. The Tigard HCT Corridor Land Use planning process will help establish potential station communities within Tigard for transit-supportive land use and recommend code and comprehensive changes as needed.

Land Uses and Zoning

Tigard's predominant form of land use within city limits is residential, particularly single-family detached housing (see Figure 1-1). An analysis of Metro Regional Land Information System (RLIS) data showed that residential uses occupy roughly 3,179 acres in the city, accounting for over half (50.5 percent) of the city's total land area, and single-family residential development makes up almost 90 percent of that figure. Commercial development constitutes 1,062 acres, or 17 percent of the total area; these uses are most prevalent along Pacific Highway-OR 99W, in the vicinity of Washington Square and within the Tigard Triangle. Industrial development makes up 303 acres, or almost 5 percent of Tigard's total land use. A significant amount of area is made up of public and institutional uses (828 acres, 13.2%). This includes land that is adjacent to Tualatin River and Fanno Creek. A sizeable amount of land in Tigard is vacant, or undeveloped according to the Washington County Assessor's database (491 acres, 7.8%). The remainder of acreage is made up of open space (84 acres, 1.3%), agriculture (37 acres, 0.6%) and other uses (348 acres, 5.5%).

Similar to the breakdown of existing land use types, the city is zoned primarily for residential, encompassing 5,226 acres or 69 percent of total area. Commercial zones make up 596 acres, or 8%, while industrial zones occupy 830 acres or 11%. In addition, there are several mixed-use districts within the city, and those constitute 910 acres, or 12%.

The city's properties have an average floor area ratio (FAR) of 0.43, with 68% of properties having a FAR between 0.01 and 0.85 (less than one standard deviation from the average). Large concentrations of developments with higher FARs are readily observed in Washington Square and Tigard Town Center (see Figure 1-2).

Buildable Land Inventory

In addition to identifying potential station communities based on existing land-uses, the City is planning to leverage the future HCT service into redevelopment opportunities within the corridor. The Tigard HCT Land Use Plan builds upon the analysis of the *Tigard Economic Opportunities Analysis* Goal 9 update, which is an evaluation of potential buildable lands and redevelopable lands within the Tigard Urban Services Boundary. The buildable land inventory (BLI) assessment included analysis of existing vacant and partially vacant tax lots and focused on land use zoning classifications that support employment uses including commercial, mixed-use and industrial zones (see Figure 1-3). The Tigard HCT Land Use Plan included in its analysis multi-family residential zoned taxlots (R-25 and R-40) as well as existing apartment and condominium parcels. All identifiable single-family residential parcels in Tigard were excluded (such as those located in partially built planned developments). Partially vacant land includes parcels that are at least a quarter-acre vacant and potentially could be subdivided for other uses. Total buildable area was derived using Geographic Information Systems data provided by the City to determine the total extent of land area constrained by environmental features (such as waterways, wetlands, and riparian buffers). The results of this analysis can be found in Table 1 below and show that the vast majority of land available is of parcels 5 acres or less in size.

Table 1. Summary of Vacant Land by General Land Use Zoning Classification
Vacant and Part-Vacant Property

	< 1 acre		1 to 5 acres		5 to 10 acres		> 10 acres		**Total**	
	Lots	Acres	Lots	Acres	Lots	Acres	Lots	Acres	**Lots**	**Acres**
Commercial	26	9.5	8	20.2	2	16.4	0	0	**36**	**46.1**
Mixed Use	63	25.3	6	8.9	1	5.7	0	0	**70**	**39.9**
Industrial	12	4.2	5	11.2	0	0	2	34.7	**19**	**50.1**
Multi-Family Res and Existing Apt/Condo	4	1.4	3	9.3	0	0	2	27.1	**9**	**37.8**
Total	**105**	**40.4**	**22**	**49.7**	**3**	**22.1**	**4**	**61.8**	**134**	**173.9**

Redevelopment opportunities in Tigard were measured by a ratio of assessed improvement value to land value for each improved tax lot using 2010 Washington County Assessor data. The parcels examined were located in commercial, industrial, mixed-use, and multi-density residential zones (R-25 or R-40) as well as existing apartment and condo parcels; all other residential lots and parcels that are government-owned or have special tax status were not included. Parcels that had a Land Value of "0" in RLIS were excluded from this analysis, as well as all identifiable single-family residential units except in certain instances such as single-family within the Tigard Triangle. This analysis revealed a number of properties that have redevelopment potential, as seen in Table 2 below. The majority of land with high redevelopment potential (ratio less than 0.33), are located in mixed-use zones. According to the *Tigard Economic Opportunities Analysis*, the "low" vacant land demand scenario shown in Table 2 best matches Tigard's future retail market potential.

Table 2. City of Tigard Redevelopable Potential
(Improvement to Land Value)

	High (< 0.33)		Moderate (0.33 to 1.00)		Low (> 1.00)	
	Lots	Acres	Lots	Acres	Lots	Acres
Commercial	19	7.2	31	17.8	199	299.8
Mixed Use	132	81.4	124	89.9	232	344.3
Industrial	18	27	25	58.8	146	437.9
Multi-Family Res and Existing Apt/Condo	14	49.5	0	0	80	242.5
Total	**183**	**165.1**	**180**	**166.5**	**657**	**1324.5**

Comprehensive Plan Designations
The City of Tigard updated its Comprehensive Plan in 2007, which outlines the next 20 years of growth for the jurisdiction. The plan includes land-use aspirations in the form of a Comprehensive Plan/Zone Map which is implemented through the City's development code (see Figure 1-4). The plan includes land use designations for residential, commercial, industrial and mixed-uses and highlights some opportunities and constraints to redevelopment. However, the Comprehensive Plan map has not been significantly updated since 1989.

Residential. The comprehensive plan lists a total of eight residential districts which range from 1) low-density zones with large minimum lot sizes (30,000 square feet in R-1 zone) to 2) medium-density zones with smaller minimum lot sizes (3,050 square feet in R-12 zone) and the flexibility to build multifamily units to 3) high-density

zones with no minimum lot size and certain ground-floor commercial uses permitted (40 units/net acre in R-40 zone). The minimum density for each zoning district corresponds to 80% of the maximum density depending on the minimum lot size.

- "Low-Density Residential" (R-1, R-2, R-3 and R-4.5) occupies large swaths of land on either side of Pacific Highway-OR 99W south and west of Downtown Tigard as well as north of the Tigard Triangle, representing existing single-family residential neighborhoods. This designation represents 2,761 acres, or 37% of total land area in Tigard.

- "Medium-Density Residential" (R-7 and R-12) has been designated for areas in western Tigard, along SW Durham Road, in the vicinity of Washington Square and in close proximity to Downtown Tigard and Pacific Highway-OR 99W. There is 1,586 acres devoted to this designation, comprising 21% of total land.

- "High-Density Residential" (R-25 and R-40) uses are concentrated in the vicinity of southern Tigard near Pacific Highway-OR 99W and along SW 135th Ave in the northwestern reaches of the city. This designation allows for up to 40 units/net acre; there is 322 acres set aside for this use, or 4% of total land.

Commercial. There are four "traditional" commercial zoning designations in the development code. These designations range between:

- "Neighborhood Commercial" (C-N) which provides for small-scale, convenience goods and services and a limited number of other uses.

- "Community Commercial" (C-C) which is intended to serve several neighborhoods with larger-scale development and permits a limited number of uses including housing up to 12 units/net acre above the ground floor of structures.

- "General Commercial" (C-G) which is designed to provide services that serve the city and greater region and allows for a wide range of uses but restricts housing.

- "Professional/Administrative Commercial District" (C-P) which allows for civic and business/professional services and permits residential at a minimum density of 32 units/net acre in conjunction with commercial development in select areas such as the Tigard Triangle.

Commercial designations in the Comprehensive Plan map are concentrated along Pacific Highway-OR 99W south of Downtown and within the Tigard Triangle. There are additional areas designated for commercial use, along OR 210 (SW Scholls Ferry Road) and south of OR 217. These areas in total make up 594 acres, or 8% of total land.

Mixed Use. Tigard includes four mixed-use districts that allow for a varying mixture of office, retail and commercial uses depending on the location and type of designation. All mixed-use iterations allow for the requisite densities needed to support HCT.

- "Mixed Use-Central Business District" (MU-CBD) is designed to provide a walkable urban village for Downtown Tigard and accommodates a wide range of high-density uses (up to 80 residential units/net acre in a station area overlay). It is located in an area roughly bounded by Pacific Highway-OR 99W, SW Hall Blvd and Fanno Creek. This designation comprises 192 acres, or 3% of total city acreage.

- "Mixed Use Employment" (MUE) is targeted at areas such as Tigard Triangle, Lincoln Center and SW Nimbus Ave and can potentially include offices, civic uses, research and development, light manufacturing, major retail, and/or residential. Residential density is envisioned at 25-50 units/net acres. This designation comprises 364 acres, or 5% of city acreage.

- "Mixed Use Commercial" (MUC) consists of Washington Square Mall and land along SW Cascade Ave and is geared towards larger-scale office, retail and service development with permitted residential at 50 units/net acre. This designation comprises 237 acres, or 3% of city acreage.

- "Mixed Use Residential" (MUR) is designed for primarily residential areas with permitted compatible mixed uses such as retail and civic uses. This designation is close to the Metzger neighborhood. This designation comprises 62 acres, or 0.9% of city acreage.

Industrial. The Comprehensive Plan contains three industrial designations, all of which allow for other limited uses but restrict residential use. The zones range from "Industrial Park" (I-P) which allows the greatest mix of uses and those industrial uses with no off-site impacts (noise, glare, odor, vibration) to "Light Industrial" (I-L) and "Heavy Industrial" (I-H) which can allow for more intensive industrial uses such as industrial services, manufacturing and production, research and development, warehousing and freight movement, wholesales and potentially waste-related activities. These designations are concentrated in the area of land between Fanno Creek and I-5/OR 217 along SW 72nd Ave. There are additional industrial areas along SW Durham Ave and northwest of Downtown along the PNWR line. There is 669 acres of land within the Industrial designation, or 9% of total city acreage.

Other. In addition to the above designations, there are several additional categories found within the Comprehensive Plan. These include "Public/Institutional" which generally refer to school properties (183 acres, 2%) and "Open Space" which is land situated adjacent to Fanno Creek, Red Rock Creek, Summer Creek, Ash Creek and Tualatin River as well as Summerfield Golf Course (591 acres, 8%).

Regional Policy Framework

The *Metro 2040 Growth Concept* identifies areas within Downtown Tigard and Tigard Triangle as a "Town Center", which are places that "provide localized services to tens of thousands of people within a two- to three-mile radius..., have a strong sense of community identity and are well-served by transit." In addition, the Murray/Scholls Town Center to the northwest and King City Town Center to the south are located partially within city limits. The City has not adopted specific boundaries for its Town Centers. Within the city, Washington Square is identified as a "Regional Center", which is characterized by "centers of commerce and local government services serving a market of hundreds of thousands of people... [and becoming] the focus of transit and highway improvements." The *2035 Regional Transportation Plan* (*RTP*) set a 2040 target for non-single occupancy mode share at 45-55% for town centers and regional centers which require a substantial transit investment to serve these communities. Metro policy allows Regional Centers to have priority for high-capacity transit service in the near future.

The Growth Concept establishes Main Street in Downtown Tigard as a defined "Main Street", which is similar in commercial identity to Town Centers but on a smaller scale with good access to transit. Main Streets typically serve the immediate neighborhood but may develop a regional specialization that draws people from other parts of the metro area. Pacific Highway-OR 99W, SW Hall Blvd and SW Hunziker Road are identified as "Corridors". A Corridor is a major street that serves as a key commuter and freight transportation route. Corridors provide a logical location for higher density development and feature high-quality pedestrian connections and convenient access to transit. The nodes of development centered on high-capacity transit stations are known as "Station Communities" which provide for the highest densities outside centers and feature a high-quality pedestrian environment. At the concept level the 2040 Growth Concept identifies potential station communities in Downtown Tigard and at the Pacific Highway-OR 99W/SW Walnut Street intersection.

Currently the entire city of Tigard has a total density of 6.8 persons/acre. Densities within Tigard Town and Regional Centers can be found in Table 3. The *Urban Growth Management Functional Plan* recommends an average employment and housing density of 40 persons per acre for Town Centers, 45 persons/acre for Station Communities and 60 persons/acre for Regional Centers. In addition, the majority of land within Tigard Triangle and in between the PNWR line and OR 217/I-5 are designated "Employment Lands" in the Functional Plan.

In 2009, Metro released its *Regional High Capacity Transit System Plan* which identified the corridors that the region should focus next for potential light rail expansion within the next four years, or "near term regional priority corridors". The proposed Portland to Sherwood corridor, or Southwest Corridor, was deemed most viable for implementation in the next four years based on 26 performance metrics, including total corridor ridership, economic competitiveness, supporting existing local land uses, integration with the regional transit system and servicing ridership generators.

Table 3. Town and Regional Center Population Density

Town/Regional Center	Population Density (persons/acre)
Downtown Tigard/Tigard Triangle	3.22
Washington Square	6.77
King City	6.22
Murray/Scholls	7.68

Local Planning Initiatives

The City of Tigard has undergone a series of planning initiatives within the last 10-15 years in an effort to attract more economic development to the jurisdiction as well as increase design standards for several sub-areas of important interest, including Downtown Tigard, Washington Square and the Tigard Triangle. The *Washington Square Regional Center Plan* (1999) seeks to improve connectivity between the mall and the station area surrounding now-built Hall/Nimbus Westside Express Service (WES) station, as well as bring higher-intensity, mixed-use office development to the station area that is more focused on pedestrian mobility than the current auto-centric traffic pattern that exists currently. The mall area itself is targeted for more mid-rise development and programmable public spaces suitable for entertainment and other uses. Additionally, there is a gradual transition in heights and intensity to surrounding single-family neighborhoods.

The *Tigard Downtown Improvement Plan* (*TDIP*) was adopted in 2005 and highlights the city's commitment to fostering an active, mixed-use "urban village" in the central business district that is pedestrian-focused. The plan highlights opportunities to build upon the "bones" of the current transportation network by establishing a tighter street grid that encourages greater pedestrian access in the district. To further the goal, additional access points are to be constructed along Ash Avenue across the PNWR line, which is seen as a major barrier to mobility in Downtown. Medium and high-density residential, office and institutional development is targeted for areas north of the PNWR line while regional retail is concentrated at the Pacific Highway-OR 99W/Hall Blvd intersection. There are streetscape enhancements envisioned along Main, Burnham, Commercial Streets as well as Hall Boulevard to help bring a more cohesive design vision and also implement "Green Street" treatments such as bioswales, water retention, and pervious pavement. The plan also embraces Fanno Creek as a place for recreation, providing open space, and in essence extending the Downtown further south with a designated "public area". New pedestrian "green corridors" are planned to travel east-west along the PNWR line and north-south along an "urban creek" feature that connects to several plazas.

The *City Center Urban Renewal Plan* (2005) establishes an urban renewal district of 193 acres that encompasses Hall Blvd, Pacific Highway-OR 99W and Fanno Creek in the Downtown area. The plan provides a funding mechanism to implement the *TDIP* as well as public improvement and public facilities projects and technical assistance programs. The plan has a duration of 20 years and a maximum indebtedness of $22 million through tax increment financing. Tigard residents voted to approve the district in May 2006.

Alleviating congestion and creating a more inviting pedestrian and bicycle atmosphere along Pacific Highway-OR 99W, a busy commuter thoroughfare, is the objective of the *Tigard 99W Improvement & Management Plan*

adopted in 2007. The plan seeks to obtain short-term benefits by consolidating access to strip commercial properties, implementing multimodal enhancements such as filling gaps in the sidewalk and bike lane network, adding additional pedestrian crossings to meet Metro *RTP* guidelines for crosswalks (no more than 530 feet apart), installing wayfinding signage, and implementing transit elements such as bus stop relocation, additional stop amenities and queue bypasses at signals. These improvements are designed to be short-term strategies for Tigard as it hopes to engender thriving, walkable mixed-use centers at potential station communities along a future HCT line.

The University of Oregon's Portland Urban Architecture Research Laboratory (PUARL) have completed two design exercises for the City which have not been formally adopted but are used as a communication tool with stakeholders. The first is the *Tigard Downtown Future Vision: A Visual Refinement of the TDIP* (2009) which seeks to provide further visualization of Downtown's future using graphical illustrations. The study maintains the vision of the *TDIP* by advocating for a restoration of the street grid to provide a more efficient circulation system in Downtown that increases accessibility for all modes, as well as subdividing the large existing parcels to maximize redevelopment opportunities. The plan envisions "extending the green" by expanding open green space near Fanno Creek, protecting existing mature trees, and utilizing various landscaping improvements throughout the area. Redeveloping the extensive number of parking lots in the area allows for new development that is dense, spatially compact and contains a fine-grain mix of uses that is necessary for a vibrant downtown. Using design standards helps the "development of a rich and highly aesthetic landscape" and could include visual landmarks, gateways and other strategies to create a unique sense of identity for Tigard. Over a generalized 50-year timeframe, the study depicts the evolution of Downtown Tigard to an area of more intensive residential employment. Enhancements include Green Street treatments, a park and plaza along with residential development at Fanno Creek, new infill construction near the Transit Center, increased connectivity throughout Downtown, high-intensity mixed-retail and office uses at the Pacific Highway-OR 99W/Hall Blvd intersection, and construction of parking structures. All of these improvements are predicated on substantial investment on transit in the city, including the new HCT line and other bus capacity improvements.

The second study by PUARL is the *Tigard 99W Corridor Urban Design Vision* (2010) and provides recommendations for cultivating potential station area communities from the low-density commercial strip development that exists today in the Tigard Triangle, Downtown Tigard and South Tigard. The study advocates for creating a street grid in the immediate vicinity of Pacific Highway-OR 99W and creating smaller block sizes and encouraging the use of structured parking. These mixed-use centers are designed to transition to surrounding neighborhoods while providing greater connections for those residents. Other proposals include amending the Comprehensive Plan and Zoning Map to allow greater variety of mixed-uses than currently permitted, locating civic and institutional uses in the corridor, and increasing floor area ratio (FAR) requirements along Pacific Highway-OR 99W up to what the market can bear (the advent of HCT service may increase property values to where greater density can be feasible). The study also envisions future urban form within a 50-year timeframe and development with the highest FAR located in the Tigard Triangle.

In addition to these City-led planning efforts, Washington County updated the *Metzger-Progress Community Plan* was (2003) for the unincorporated community that borders Tigard to the north. It includes several considerations to promote development where compatible with the existing neighborhood while discouraging strip commercial development.

HCT System Expansion Policy Targets

The System Expansion Policies (SEP) framework found in the HCT plan was developed to advance future regional corridors through a series of performance criteria. When considering potential transit corridors, the policies help guide ridership development, support the creation of TOD, support station area planning policies as well as guide strategic right-of-way acquisition.

Metro has published SEP guidelines which help determine which regional corridor should begin implementation for future HCT service. These guidelines serve as benchmarks that Tigard needs to consider when making future land-use decisions along the transit corridor. They are important not only for determining the extent which HCT can be leveraged into redevelopment, but are crucial for providing high enough ridership projections based on

intensifying and diversifying adjacent land-uses over the next several decades. These projections (and other factors such as overall costs) ultimately decide whether federal funding is secured for HCT construction. The draft system expansion targets listed in Table 4 will be presented to the Transportation Policy Alternatives Committee (TPAC) and Joint Policy Advisory Committee on Transportation (JPACT) in Spring 2011.

Table 4. Draft SEP Quantitative Measures

Measure	Description
Density of People	Current households and jobs per net acre within ½ mile
Density of ULI Businesses	Number of Urban Livable Infrastructure (ULI) Businesses within ½ mile. (ULI refers to the range of urban amenities available, which can add value to an area in the form of higher achievable pricing for residential development.)
Transit Oriented Zoning	Assigning values to regional zoning classifications within ½ mile. (Examples of transit oriented zoning are mixed-use, high-density zones with no minimum parking regulations.)
Average Block Size	Density of acres of blocks within ½ mile
Sidewalk Coverage	Completeness of sidewalk infrastructure within ½ mile
Bicycle Facility Coverage	Access to bicycle infrastructure measured as distance to nearest existing bicycle facility within ½ mile
Transit Frequency	Transit frequency within ½ mile of corridor
Housing & Transportation Affordability	Demonstrating that potential transit investment will serve communities with high rate of cost burdened households
Parking Requirements	Implement parking requirements in corridor that meet or exceeds Title 4 of the *Regional Transportation Functional Plan* (RTFP).
Local Funding Mechanisms	Implement funding mechanisms corridor communities that could help fund capital or operations to support transit investment and station area development, including urban renewal, tax increment financing, local improvement district, parking fees, or other proven funding mechanisms.
Equity	Looking at low-income, minority, senior and disabled populations within corridor.

Opportunities and Constraints – Findings

This section represents the key opportunities and constraints that exist to developing HCT-supportive land-uses along the Southwest Corridor in Tigard. As the planning process moves forward and potential station communities are identified, the City will need to update its community development code to accurately reflect the investment in high-quality transit that may be forthcoming. These station communities are areas that should be

primed for higher-intensity, mixed-development over the next 10-20 years. The following findings should be accounted for in future development regulations within the study area.

Amount of Developable Land at Transit-Supportive Densities
An overview of City of Tigard comprehensive plan/zoning designations as well as the buildable land inventory and redevelopment potential as part of the EOA analysis show that Tigard is well-positioned to leverage future HCT investment in future land-use decisions. Many properties with medium high redevelopment potential are located in existing mixed-use zones that permit the highest densities in the city, including the Tigard Triangle. The existing auto-oriented environment along Pacific Highway-OR 99W has the potential to be retrofitted into prospective station area communities that provide a wide array of amenities as well as greater pedestrian and bicycle connectivity. In addition, the convergence of commuter rail, bus and potentially HCT could lead to the support for even higher densities within certain areas of Tigard.

Comprehensive Plan Policies
The City has targeted mixed-use development at strategic locations include Downtown Tigard, Washington Square and much of Tigard Triangle and is well-poised to build at higher densities in these areas, all of which could potentially receive HCT facilities.

Much of the land directly adjacent to Pacific Highway-OR 99W is intended for low-density commercial in the comprehensive plan, which are more prohibitive in terms of allowing other uses. These commercial zones are surrounded by low-density residential, especially south of Downtown, which is a constraint on future development. Any potential station communities along this stretch would benefit from a higher intensity land use designation, perhaps using mechanisms such as overlays and incentivized zoning (ex: density and height bonuses) to insure that there is sufficient residential density to support high-capacity transit.

Foundation of Existing Plans
Prior initiatives completed by the City such as the *TDIP*, *Tigard 99W Corridor Urban Design Vision*, and *Downtown Future Vision* show that Tigard has serious interest in creating a vibrant downtown and revamping Pacific Highway-OR 99W to better accommodate non-automobile users. The city is in good position to increase development intensity and provide a variety of amenities which dovetails with the land-use objectives that would coincide with the introduction of future HCT service.

Regional Policy Framework
It has been long-standing Metro policy to focus transit investment (and accompanying growth) in Tigard. The *2040 Growth Concept* illustrates that Tigard contains not only a Town Center in Downtown and Tigard Triangle, but also a Regional Center at Washington Square mall. The policies in the *RTP* call for serving regional centers, such as Washington Square, with high capacity transit. Furthermore, the city's population density falls far short of density targets set by the plan. Yet in order to reach the *RTP*'s 2040 target mode share for non-single occupant vehicle in regional and town centers, additional HCT investments must be made in the Southwest Corridor.

System Expansion Policies
As part of Metro's *HCT System Plan*, the SEP was established to prioritize corridors for implementation based on a series of performance metrics. While Corridor 11 (Portland to Tigard) received "Near-Term Regional Priority" status for high projected ridership and servicing major destinations, many policy and zoning changes will be necessary in the near future to meet selected SEP benchmarks. The following finds are from a review of City data and plans including the *Transportation System Plan* and Metro analysis of Tigard.

- Density of People: Higher instances of households and jobs per acre are located along major corridors within Tigard: Pacific Highway-OR 99W and Scholls Ferry Road-OR 210 as well as along SW 72nd Ave in SE Tigard. There is also a concentration of density in Washington Square, Downtown Tigard and portions of the Tigard Triangle.

- Density of ULI Businesses: Amenities are most common in commercial areas along Pacific Highway-OR 99W as well as in Washington Square. Additional concentrations can also be found along Scholls

Ferry Road-OR 210, Cascade Avenue, and in Bridgeport Village. The majority of Tigard is zoned exclusively for single-family residential use where ULI Business density is consequently low.

- Transit Oriented Zoning: This benchmark will be revisited at future phases in the Tigard HCT Land Use planning process.

- Average Block Size: With some exceptions, observation of Tigard's suburban-style street grid would suggest that it would not likely meet reasonable standards of block density.

- Sidewalk Coverage: The highest density of sidewalks in Tigard are in the vicinity of Downtown as well as in the Summerfield community in South Tigard and in areas of NW Tigard. The majority of the city has moderate concentrations of sidewalk coverage, with the lowest levels observed in industrial areas near Hunziker Road.

- Bicycle Facility Coverage: Tigard has a fairly high coverage of bikeways throughout its jurisdiction, but there are underserved areas such as Washington Square, industrial portions of SE Tigard and in SW Tigard adjacent to King City where the density of bikeways is not as high. Major bike routes are confined to Pacific Hwy-OR 99W, Hall Boulevard, Gaarde-McDonald Streets, Durham Road and the Fanno Creek Greenway Trail.

- Transit Connectivity: TriMet bus line 12 is a Frequent Service line that travels along Pacific Hwy-OR99W and may be supplanted in part by new HCT. Bus line 56 is a Frequent Service line that travels to Washington Square via Scholls Ferry Road-OR 210. Lines 76 and 78 travel through Tigard TC along Hall Boulevard and Greenburg Road at much lower frequencies (half-hour headways during peak, one-hour otherwise). Bus lines 43, 45, and 62 are additional lower-frequency lines that service Washington Square (Bus line 62 also serves Tigard TC). WES provides morning and afternoon/evening service (5:40 to 9:10 AM and 3:45 to 7:15 PM) to Downtown Tigard Monday through Friday with half-hour headways. WES travels between Beaverton and Wilsonville.

- Housing & Transportation Affordability: This benchmark will be revisited at future phases in the Tigard HCT Land Use planning process.

- Parking Requirements: Currently, Tigard institutes minimum off-street parking standards of at least 1 parking space per residential dwelling unit in all zones. Almost all civic and commercial uses have minimum parking standards based on floor area. Tigard's parking maximum ratios conform to Metro-defined maximum ratios.

- Local Funding Mechanisms: This benchmark will be revisited at future phases in the Tigard HCT Land Use planning process.

- Equity: This benchmark will be revisited at future phases in the Tigard HCT Land Use planning process.

Based on the City's prior planning efforts and political willingness for change, there is increasing momentum towards rethinking the built landscape and land uses in Tigard and along Pacific Highway-OR 99W to better serve current and future residents within the coming decades.

Figure 1-1: City of Tigard - Land Use - Existing

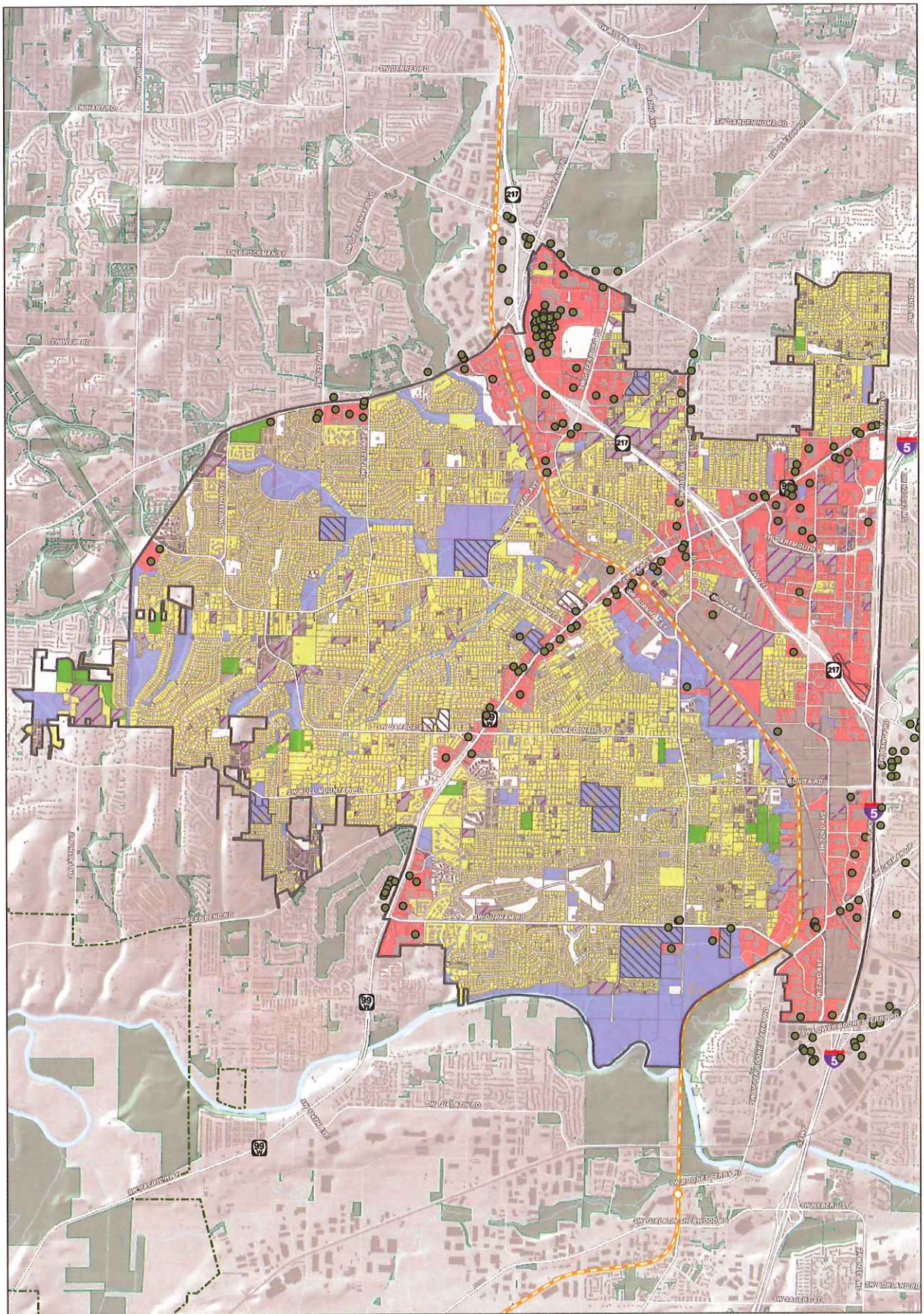

Figure 1-2: City of Tigard - Land Use - Floor Area Ratios

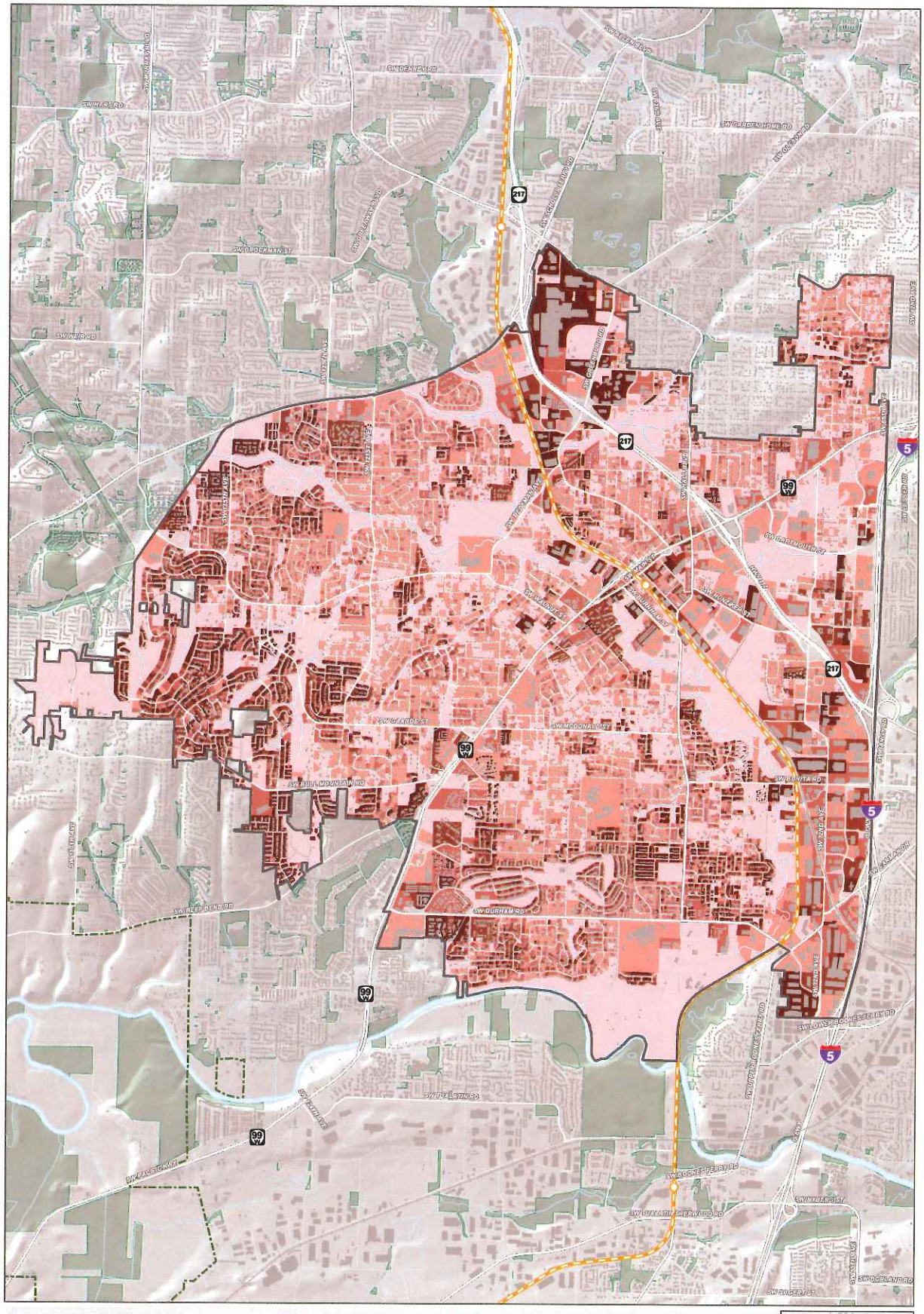

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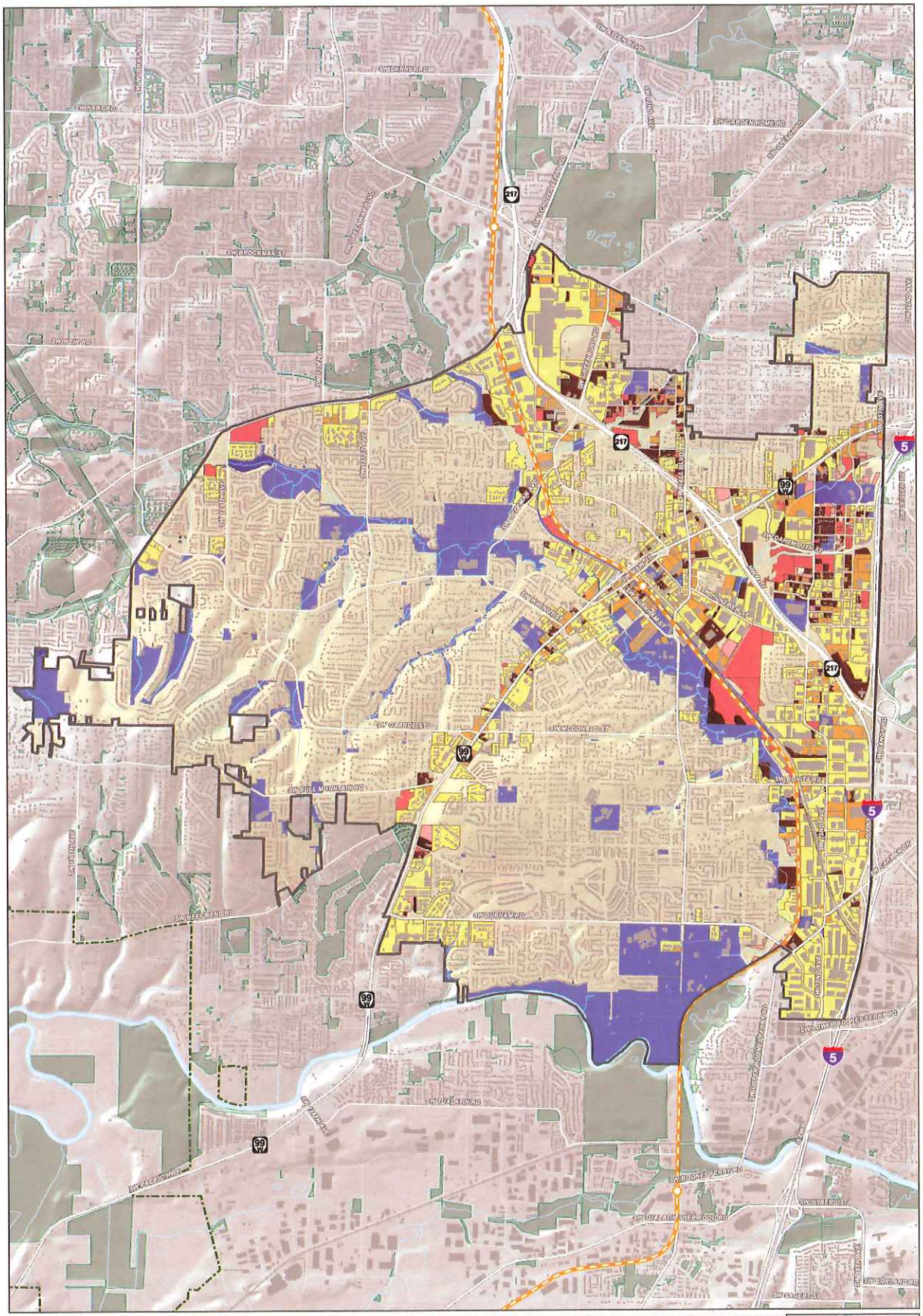
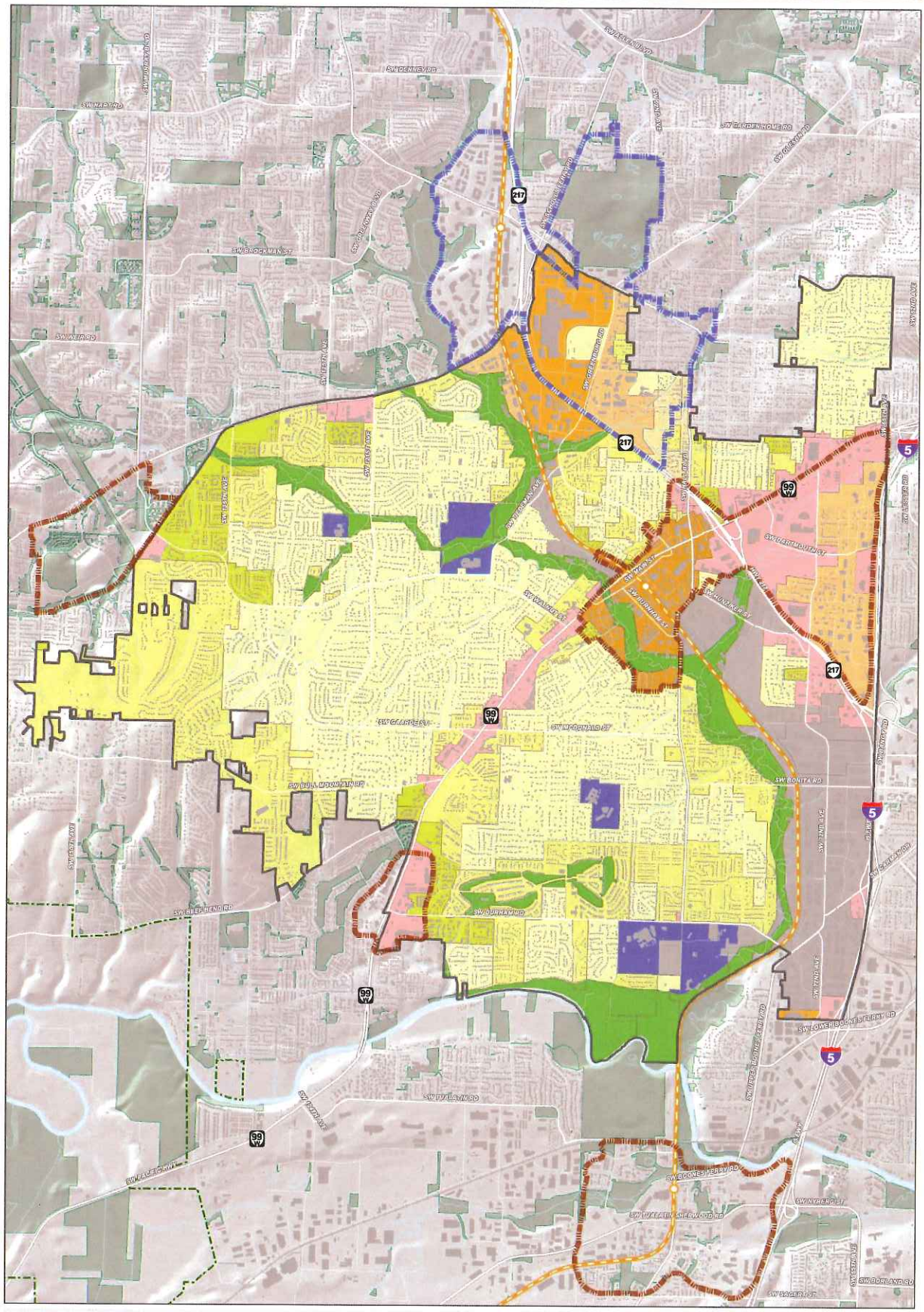
Figure 1-3: City of Tigard - Land Use - Buildable Land Analysis



File: Tigard_Landuse_BLI_11x17.mxd. Print Date: January 26, 2011

Figure 1-4: City of Tigard - Land Use - Comprehensive Plan



Comprehensive Plan Designations

- Commercial
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Mixed Use - Central Business District
- Mixed Use Commercial
- Mixed Use Employment
- Mixed Use Residential
- Industrial
- Parks/Open Space

- Tigard City Limits
- Regional Center
- Town Center
- Commuter Rail
- Railroads

- Urban Growth Boundary
- Rivers and Water Bodies
- Parks
- Streams

0 0.25 0.5 Miles

Metro Region

10 Miles

File: Tigard_Landuse_Compplan_11x17.mxd. Print Date: February 1, 2011

Parametrix ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

TECHNICAL MEMORANDUM

Date:	March 16, 2011
To:	Judith Gray and Sean Farelly, City of Tigard, Crista Gardner, Metro, and Lidwein Rahman, ODOT
From:	Anne Sylvester, PTE
Subject:	Final Report on Existing and Future Base Case Transportation Conditions
Project Number:	277-2395-078
Project Name:	Tigard HCT Corridor Land Use Plan

INTRODUCTION

Purpose of this Chapter

This chapter summarizes existing and future base case transportation conditions focusing on the street and highway network, transit, bicycle and pedestrian facilities, and rail. The intent of this discussion is to identify opportunities and constraints that will influence the selection or future development of High Capacity Transit (HCT) station communities in the City of Tigard. The study area for this analysis includes the entire city of Tigard.

Content and Organization

This report is organized into seven major sections including this introduction. The following section addresses the street and highway system serving the City of Tigard and connecting it with the remainder of the region. Other sections focus on: pedestrian facilities, bicycle facilities, transit service and facilities, and rail. The report ends with a discussion of key opportunities and constraints that could influence the location and development of HCT station communities in Tigard.

The information in this report has largely been extracted from the City's recently adopted Transportation System Plan. Other documents that contributed to the information in this report included: the Oregon Highway Plan, the Regional Transportation Plan, the Washington County Transportation Plan, the Pacific Highway Improvement and Management Plan, and various documents related to High Capacity Transit planning in the Southwest Corridor.

SUMMARY OF OPPORTUNITIES AND CONSTRAINTS

Key findings related to the transportation system in the City of Tigard that are of particular importance in identifying and conceptualizing potential future HCT station communities are summarized in this section. As noted in the discussion in this report and further amplified in relevant planning documents, these key findings include the following.

Connectivity and Local Mobility

Connectivity for autos, bicyclists, pedestrians and transit in the City of Tigard is severely challenged by several barriers including: Highway 217, I-5 and the WES commuter/freight rail line, as well as Fanno Creek, Bull

Mountain, and other natural features. These challenges are exacerbated by a built environment that precludes efficient connections through the prevalent use of cul-de-sacs and other dead end streets. Such limited service roadways are attractive for neighborhoods because they limit traffic volumes and travel speeds. However, they contribute to inefficiency in the circulation system and over-reliance on major arterials. Often they also require out of direction travel for bicyclists and pedestrians discouraging these modes of travel. One of the priorities in implementing the 2035 TSP is to identify and preserve potential opportunities for future connectivity improvements in order to protect and maximize the function of the existing transportation network. Opportunities for enhancing local connectivity should be fully considered in both locating and developing potential future HCT station communities.

The Tigard TSP speaks to the need for connectivity for all travel modes. Policies 3 and 11 under the goal to enhance system efficiency address designing streets to encourage connections and providing connectivity between Metro designated centers, corridors, and employment/industrial areas. The TSP identifies the need for the city to conduct a citywide connectivity and circulation study to identify potential circulation system improvement, and to create a comprehensive inventory of street stubs, unimproved rights-of-way, and other potential future roadway connections to inform long-rang planning and development review. The TSP's multi-modal transportation goal addresses the desirability of developing and maintaining neighborhood and local connections to provide for efficient circulation into and out of neighborhoods. The City's existing Development Code also speaks to the need for improved system connectivity when establishing future streets or extensions of streets.

Land Use Patterns and the Development of Efficient Transportation

The types, intensities, and locations of different land uses are closely correlated with travel demand and mode choice. Land use patterns in the City of Tigard and surrounding areas are suburban in character, with residential areas separated from commercial areas and a relatively low density of overall development. The majority of land in Tigard is zoned for residential uses, with commercial zoning primarily along Pacific Highway and in the Tigard Triangle, and industrial primarily along the WES commuter rail track south of Pacific Highway. This development pattern results in travel demand that is highly directional according to typical weekday peak periods. Specifically, there are relatively sharp peaks in travel demand during weekday commute hours, with predictable peak period traffic flowing away from residential neighborhoods in the morning and returning in the evening.

Tigard has adopted plans for a more compact urban form in several areas including downtown, and the Washington Square Regional Center (WSRC). The 2035 TSP supports such land use strategies to mitigate the strain on the roadways by shortening home-to-work trips, supporting transit service, and making walk/bike trips more viable for work, shopping, and other activities. This policy objective supports the identification and evaluation of HCT station communities which should be situated to maximize their effectiveness in reducing vehicular travel demand and/or patterns of peak traffic directionality.

Major Roadways – I-5, Highway 217, and Pacific Highway (99W)

Tigard is at the juncture of three major state highways: Pacific Highway (99W), Highway 217, and I-5. While they serve as important access routes to and from Tigard, they also pose significant barriers and constraints. Highway 217 and I-5 are both limited access freeways. Because they are under ODOT jurisdiction, the City has no direct operational authority over them. Access to and from Tigard is provided by the ramp interchanges, which are also governed by ODOT. Both highways provide critical access to and from Tigard. However, congestion is commonplace along the highways and at interchanges. Plans for widening OR 217 have not moved forward largely due to significant costs. When completed, the *Southwest Mobility Corridor Transportation (Refinement) Plan* will identify operational improvements to I-5. Without capacity and operational improvements, congestion on the major roadways in Tigard will result in regional traffic using city streets as detour routes.

Pacific Highway is a statewide highway and freight route carrying more than 50,000 vehicles per day on some sections through Tigard. Given these designations, the highway plays a critical role in regional and statewide mobility, providing a primary connection between the Willamette Valley and the Oregon Coast, and cities in between. Traffic on the segment within Tigard is divided nearly evenly between local trips and through traffic.

Because it is an at-grade roadway, the high through traffic has a significant impact on adjacent properties. Heavy traffic results in traffic congestion, compromises the pedestrian and bicycle environment, and creates challenges for transit service. The limited capacity for additional traffic threatens to limit development opportunities in Tigard.

Strategies for Pacific Highway must balance the needs for statewide and regional travel, along with potential local impacts. These include direct improvements to the highway to improve traffic operations as well as connectivity improvements within Tigard to reduce reliance on the highway for local travel. Many opportunities to address these competing needs have been explored in earlier planning and engineering studies, which have been incorporated into the 2035 TSP. Strategies identified in the *Tigard 99W Improvement and Management Plan* recommend a maximum five-lane cross-section along the highway through Tigard with selected additional turning lanes where needed.

Continuous east/west travel on Tigard streets is primarily served by Durham Road and Bonita/McDonald/Gaarde. These routes are frequently constrained during weekday peak periods, with predictable traffic flow reflecting the housing/jobs development patterns in Tigard and the region. To an extent, these roads provide connections between I-5 and neighboring cities. While widening these roadways could improve traffic flow, the evaluation of such improvements must be balanced with the benefits for local and through traffic, and the impacts to be borne by the local community.

Multi-Modal Connections

Motor vehicle travel is now and will continue to be the primary mode of travel serving Tigard within the 2035 TSP horizon. As such, future transportation investments in Tigard must support a safe and reliable roadway system to accommodate current and forecast demand. However, many people are realizing benefits – cost savings, quality of life, community connection, health and fitness, and sustainability – of walking, cycling, carpooling, or using public transit. In order to meet the future travel needs of the community, increased travel by transit, walk, and bike is essential to the future transportation system in Tigard, as much as adding expensive roadway capacity for increased demand. This will be accomplished through a combination of strategic investments and partnerships that are identified in the TSP, including regional plans calling for multi-modal refinement plans in key corridors, such as Pacific Highway/99W.

Several streets (Pacific Highway/99W, Gaarde, McDonald, Bull Mountain, Bonita, sections of Hall) were identified as locations with challenging roadway crossing conditions for pedestrians and bicyclists. These tend to be streets with relatively high traffic volumes, but infrequent signalized intersections or other protected crossing locations. While the state of Oregon considers all unsignalized intersections legal crosswalks, driver compliance is not consistent so that there are still challenges for pedestrians at these locations. The TSP identifies the need to develop citywide plans for both pedestrians and bicyclists, and to develop a ranking system for prioritizing improvements.

Special Areas

Three areas within Tigard – Tigard Triangle, WSRC, and Downtown – represent considerable community growth opportunities, but also provide significant transportation challenges. Even when bounded by significant transportation facilities, congestion is an issue for trips to, from, and through these areas. For this reason, an emphasis on mixed-use development that supports transit, walking, and cycling trips is a critical focus of transportation planning for these areas.

Land Use Planning and Development

As a strategy to effectively reduce vehicular traffic volumes on streets and highways within Tigard, the City's TSP also includes a discussion of potential land use planning and development activities. These include:

- Supporting the development of commercial nodes in residential areas, and
- Support non-auto dependent development

Potential Further Plan or Study: Support Commercial Nodes in Residential Areas

Commercial nodes in residential areas would provide residents with the opportunity to take non-work trips by bike or walking. These neighborhood commercial (NC) nodes could include small restaurants, coffee shops, or neighborhood retail. This could be accomplished by allowing neighborhood commercial (NC) as a permitted or conditional use in residential zones, or through designating specific nodes on the City's comprehensive plan map as neighborhood commercial. The NC designation currently exists within the City.

Potential Further Plan or Study: Support Non - Auto Dependent Development

Mixed-use developments combine housing, retail, employment, and other land uses together in a single development project. Such developments have been found to reduce automobile trips by supporting higher frequency transit service and promoting pedestrian and bicycle travel. Urban areas with mixed uses and higher densities should be promoted in targeted areas, such as in the Downtown, along Pacific Highway, and in the WSRC. Non-auto dependent development can be encouraged through various policies such as parking management requirements, density requirements or bonuses, pedestrian, bicycle or transit mode design guides to integrate non-auto mode features and incentives directly into development, and/or prohibition of new auto dependent uses.

Plan Amendments and Mobility Standards

Several land use strategies are identified in the TSP as measures to help reduce traffic congestion resulting from single occupancy vehicle (SOV) travel. These land use strategies are also important in order to support transit investments, including the Southwest Corridor High Capacity Transit (HCT) service in Tigard. In particular, transit supportive land uses tend to include higher densities and mixed uses, as well as design elements that make walking and bicycling safe, convenient, and comfortable.

Amending Tigard's existing zoning to allow higher density developments may present challenges with respect to meeting ODOT performance standards for adjacent state highways. The Transportation Planning Rule (OAR 660-12-0600) which requires that amendments to adopted plans must not cause an affected roadway to fail to meet performance standards, or if the forecast roadway operations are already failing to meet performance standards, the plan amendment must not further degrade performance.

This is a known issue in downtown, Washington Square Regional Center, along Pacific Highway, and in the Tigard Triangle, and may also arise in other areas near state highways or freeway interchanges. There are numerous measures that can be taken in the land use planning and design process to reduce trip generation from increased development. These include:

- Parking management, including pricing and time limits;
- Reduced parking requirements or parking maximums for new development;
- Improved facilities for pedestrian and bicycle access and circulation;
- Complementary mix of land uses;
- Improved connectivity for motor vehicles as well as for bicycles and pedestrians; and,
- Transportation system management (TSM) measures to improve traffic operations without significant capacity expansions.

The above measures are an effective approach to reducing traffic impacts from increased development. Additional transportation mitigations are primarily focused on improving general transportation conditions for all travel modes. While these measures may be pursued for their own merit, they are also identified as an option for transportation mitigations where increased density results in higher trip generation:

- Access management to improve general traffic operations on arterials and collectors; and,
- Mitigation of known safety and access deficiencies for motor vehicles, transit, pedestrians, and/or bicycles.

The City will continue to work with Metro and ODOT to develop transportation and land use strategies that support Tigard transportation and community development goals, Metro's 2040 growth concept, and ODOT performance standards.

ROADWAYS

This section presents a summary of information about existing and potential future roadway facilities and conditions. Included in the section is a summary of state highways, arterials and other key roadways focusing on functional classification, roadway jurisdiction, roadway lane channelization, roadway standards, existing and future arterial and intersection operations, and planned improvements.

Inventory of Facilities

Three major regional transportation facilities traverse the City of Tigard: Interstate 5, Highway 217, and Pacific Highway (99W). These facilities are state highways under the jurisdiction of the Oregon Department of Transportation (ODOT) and are subject to the operational and design requirements placed by the state. Plans for improvements to the highways and interchanges, as well as changes to adjacent land uses and access points must be developed in a manner consistent with ODOT plans, guidelines, and standards.

Further, each of these facilities delineates a Regional Mobility Corridor in Metro's 2035 Regional Transportation Plan (RTP). The corridors, while anchored by major roadway facilities, also encompass local streets and multi-modal facilities. Metro's Mobility Corridor Atlas identifies the following four corridors connecting to Tigard:

- Corridor 2 North: includes the area surrounding I-5 and Pacific Highway connecting Tigard to Portland Central City. This corridor area includes I-5 between Portland and Tualatin, and Pacific Highway between Portland and King City.
- Corridor 3 South: includes the area surrounding I-5 and Pacific Highway, connecting Tigard to Tualatin, Wilsonville, and Sherwood.
- Corridor 19: includes the area around Highway 217 connecting Tigard to Beaverton and Hillsboro (via Highway 26) as well as Lake Grove to the east.
- Corridor 20: includes the area surrounding Pacific Highway connecting Tigard to Sherwood and Newberg, as well as Tualatin and portions of Wilsonville.

By identifying and managing multi□modal corridors, Metro is shifting transportation planning away from a focus on facilities and toward a focus on providing connections using a system of modal options. A Metro summary of existing conditions for each of these Regional Mobility Corridors is provided in Appendix C of the Volume 2 Technical Appendix of the City's TSP.

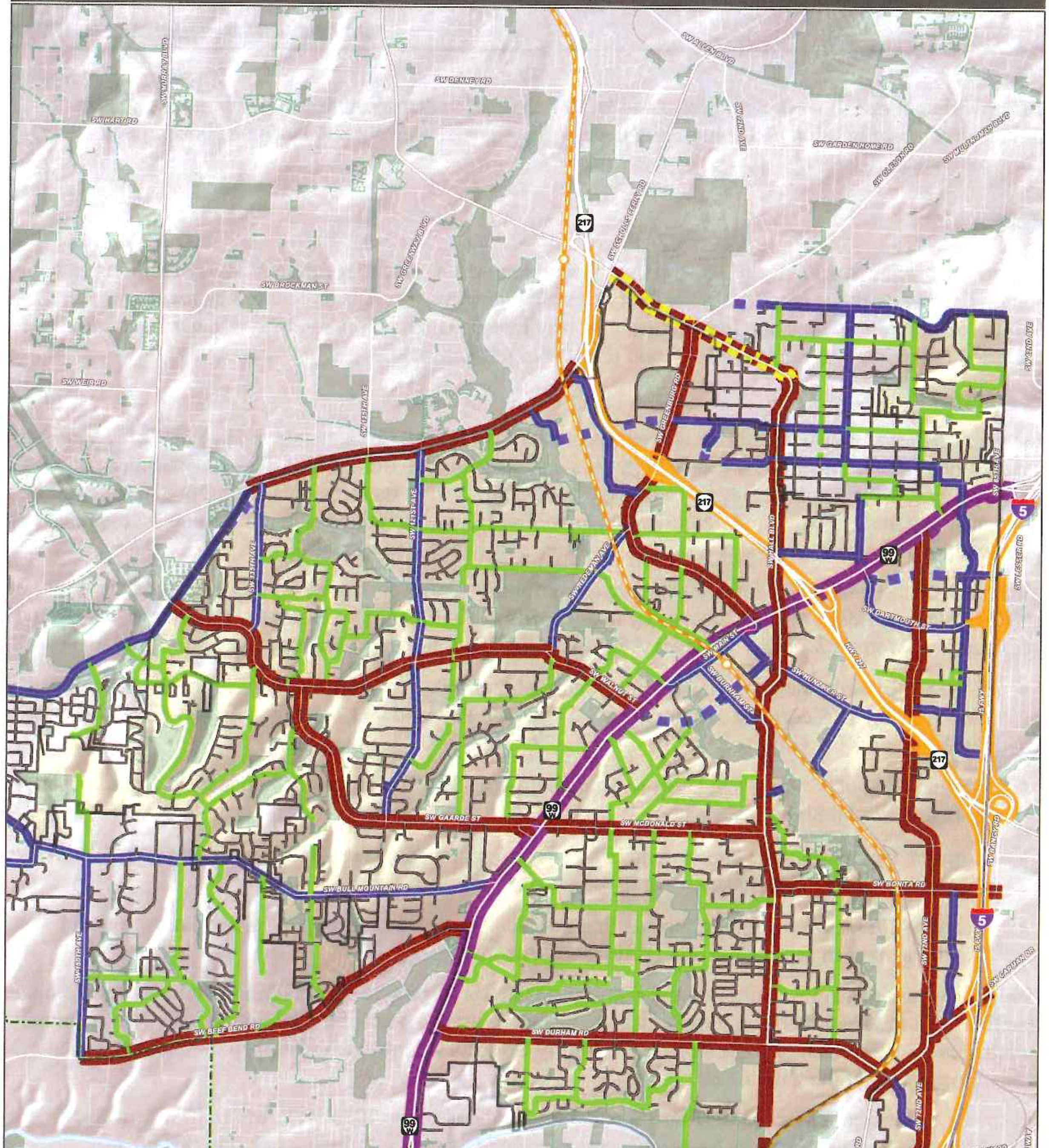
Multi-modal refinement plans for Corridors 2 and 3 are included in the 2035 RTP. Metro has identified Corridor 2 as one of two top priority corridors for refinement plans and has secured funding to begin this effort.

Functional Classification

According to the Tigard TSP, the functional classification of a roadway defines the primary role in terms of providing mobility and access. An individual street's classification directs the design and management of the roadway, including right of way needs, the number of travel lanes and other cross-section elements, and access management standards. Figure 1 shows the functional classification for each roadway in Tigard. The City of Tigard functional classification policies include the following designations:

- Freeway
- Principal Arterial
- Arterial

Fig. 1: City of Tigard - Transportation - Roadway Functional Classification



Functional Classification

Freeway	Local	Tigard City Limits	Parks
Principal Arterial	Special Transportation Area (STA)	Commuter Rail	Urban Growth Boundary
Arterial		Railroads	
Collector		Streams	
Neighborhood	Future Roadways	Rivers and Water Bodies	

0 0.25 0.5 0.75 Miles

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- Collector
- Neighborhood Routes
- Local Streets

Freeway

Freeways are state facilities that provide the highest level of regional mobility and connectivity. These roadways usually extend across several jurisdictions and are often characterized by limited access points and high travel speeds. In Tigard, I-5 and Highway 217 are access controlled freeways.

Principal Arterials

In Tigard, principal arterial streets are major state facilities that provide a high level of regional mobility and connectivity, provide access to freeways via interchanges, but also serve local trips to and from major commercial, residential, industrial, and institutional areas. Principal Arterial streets maintain mobility as a priority. Access control is very important on Principal Arterials although full freeway access control is not feasible due to the need to provide access to the arterial and collector street system. In Tigard, Pacific Highway is a principal arterial street.

Arterial Streets

Arterial streets serve to connect and support the freeway and principal arterial system. These streets link major commercial, residential, industrial, and institutional areas. Arterial streets are typically spaced about one mile apart, and maintain mobility as a priority. Access control is important on arterial routes, but not to the extent of principal arterial systems. Many of these routes connect to cities surrounding Tigard and commonly provide access to freeways via interchanges. Arterial streets in Tigard include:

- 72nd Avenue
- Beef Bend Road
- Bonita Road
- Durham Road
- Gaarde Street / McDonald Street
- Greenburg Road
- Hall Boulevard / 85th Avenue
- Scholls Ferry Road
- Walnut Street

Other street classifications are described in the City's Transportation System Plan and mapped on Figure 1.

Roadway Jurisdiction

Public roads within the Tigard Urban Planning Area are under the jurisdiction (ownership) of the City of Tigard, Washington County, and the Oregon Department of Transportation (ODOT). Table 1 lists the collector and arterial streets and roadways within the Tigard Urban Planning Area that are not under the City of Tigard's jurisdiction.

Table 1. Washington County and ODOT Roadways, Within the Tigard Urban Planning Area

Roadway	Jurisdiction
I-5	ODOT
Highway 217	ODOT
Pacific Highway (99W)	ODOT
Hall Boulevard	ODOT
Scholls Ferry Road	Washington County *
Beef Bend Road	Washington County

Table 1 Cont. Washington County and ODOT Roadways, Within the Tigard Urban Planning Area

Roadway	Jurisdiction
I-5	ODOT
Highway 217	ODOT
Pacific Highway (99W)	ODOT
Hall Boulevard	ODOT
Scholls Ferry Road	Washington County *
Beef Bend Road	Washington County
Barrows Road	Washington County **
Bull Mountain Road	Washington County
Greenburg Road (north of Highway 217)	Washington County
Roshak Road	Washington County
Locust Street (east of Hall Boulevard)	Washington County
Oak Street (east of Hall Boulevard)	Washington County
80th Avenue	Washington County
150th Avenue	Washington County

* Scholls Ferry Road between the WES Commuter Rail and Hall Boulevard is under ODOT jurisdiction.
** Barrows Road between the western Scholls Ferry Road/Barrows Road intersection and approximately 100 feet east of Murray Boulevard is under City of Beaverton jurisdiction.

All other public street or highway facilities in the study area are owned and maintained by the City of Tigard.

Roadway Travel Lanes

Figure 2 provides a summary of the existing (2009) number of through lanes on each of the arterial and collector streets in Tigard. The figure shows the roadways that have three or five-lane cross-sections in 2009. These are usually higher order roadways that carry higher traffic volumes than other roadways in the study area. In addition, these roadways frequently carry higher volumes of bus, bicycle, and pedestrian traffic. All other roadways have two lanes.

Connectivity

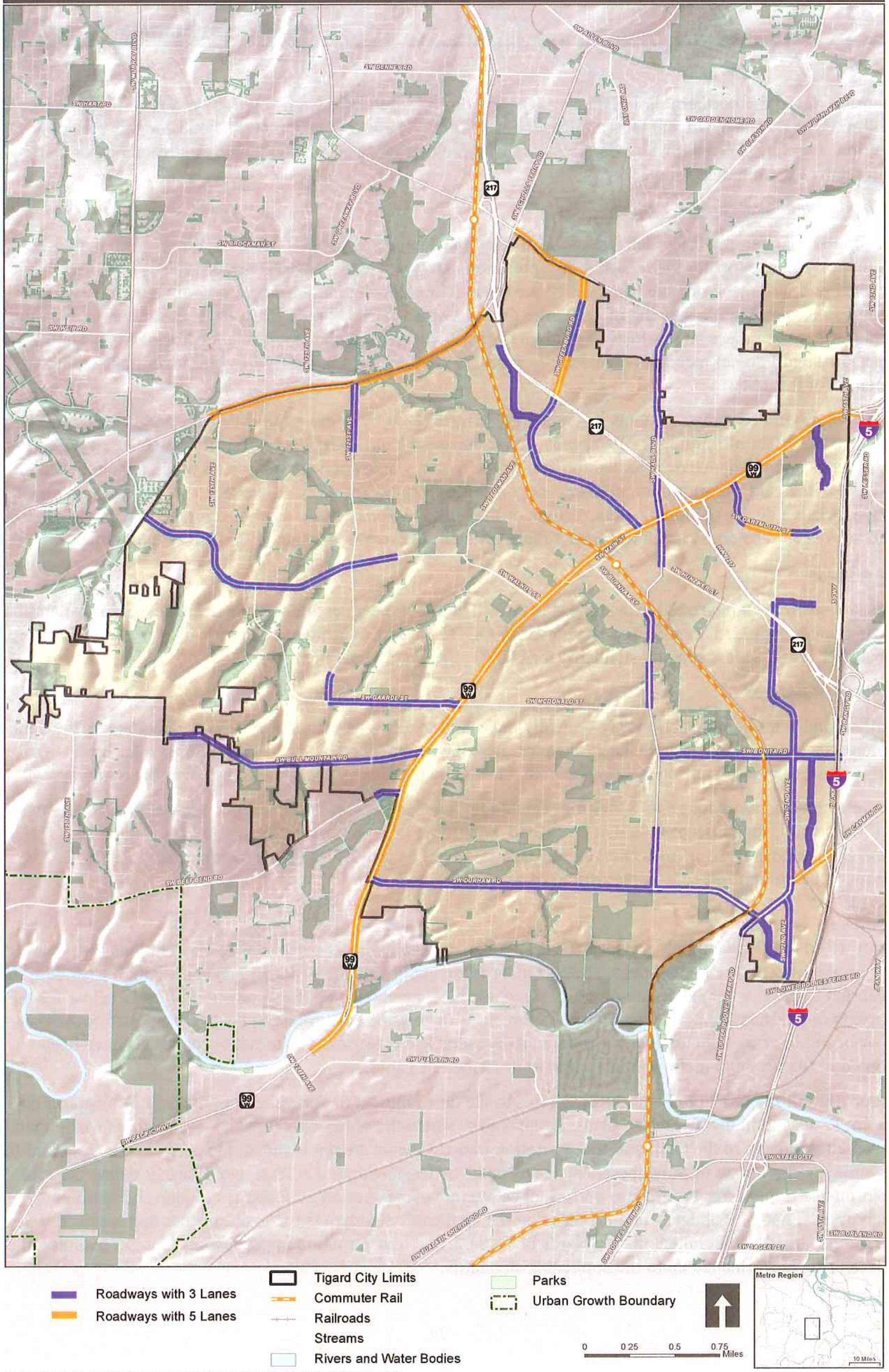
Roadway connectivity describes the road network characteristics generally related to frequency of and distance between connections to cross streets. A well-connected network minimizes the need for out-of-direction travel while supporting efficient dispersal of travel demand among multiple parallel roadways. The most common example of efficient roadway connectivity is the traditional grid system, with north/south and east/west streets spaced at generally equal distances. In Tigard, the existing major roadways, along with topography, natural resources, and land development patterns preclude this type of network on a large scale. However, it is possible to plan for good connectivity by preserving right of way for future connections and prioritizing funding to alleviate existing and future bottlenecks at key crossing locations.

Arterial Connectivity

The RTP identifies spacing guidelines of one mile between regional four-lane arterials. At a technical level, much of Tigard meets these guidelines for arterial connectivity (see Figure 1). Major roadways such as Highway 217, Pacific Highway, and Scholls Ferry Road provide regional connections and provide access within Tigard. However, the absence of lower classification parallel through streets focuses excessive demand on only a few major roadways.

In particular, east/west connectivity is severely challenged by Highway 217, the WES commuter rail line, and Fanno Creek. These three generally parallel features provide a significant barrier to east/west connectivity within and across Tigard. SW Scholls Ferry Road and Pacific Highway provide major arterial-level crossing

Fig. 2: City of Tigard - Transportation - Roadways With More Than 2 Lanes



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opportunities in the northern part of Tigard. However, south of Pacific Highway east/west crossing opportunities are limited to Bonita Road and Durham Road, both of which have only one travel lane in each direction. In addition, there are limited lower order crossings of these barriers. This places considerable demand on facilities with relatively limited capacity.

Collector and Local Street Connectivity

In a similar manner, the RTP identifies collector and local streets as general access facilities for neighborhood circulation and support for the regional transportation network. Connectivity at these levels is especially important for local pedestrian and bicycle trips, which are essential to reducing reliance on automobile travel. The RTP recommends a maximum spacing of 1/10 mile for local streets and 1/2 mile for collectors in order to encourage local traffic to use these streets instead of higher order facilities. Locations where collector roadways and local streets in Tigard do not meet this connectivity standard are identified in the figures provided in the technical appendix of the TSP.

Many neighborhood streets systems in Tigard are characterized by numerous cul-de-sacs and stub streets. These can have the effect of limiting traffic speeds and volumes on local streets. However, they also result in indirect travel paths and a reliance on arterials for local trips. In many areas of Tigard, most of the land is built-out along with the associated transportation network; opportunities for new roadway connections are limited and may be very expensive due to natural barriers, terrain, or the built environment. As new development occurs, new roadways should be constructed to create a more efficient network consistent with the RTP guidelines.

Standards

This sub-section summarizes key agency standards that affect the assessment of roadway design and operational performance. Included are mobility standards for ODOT, Metro, Washington County and the City, along with street design and access spacing standards for ODOT, the County and the City.

Mobility Standards

Traffic conditions at intersections are typically measured in terms of their ability to accommodate traffic demand (volume-to-capacity, or v/c ratios) and the average delay experienced by drivers (level of service, or LOS). Performance standards for intersections are established by the agency with ownership over the roadway.

The relevant standards for ODOT facilities (including intersections on state facilities such as Pacific Highway, Hall Boulevard, segments of Scholls Ferry Road, and freeway ramp intersections) and Washington County (who owns and operates many of the other major roads serving the city of Tigard) are summarized in Table 2. The following paragraphs present further discussion of these standards.

ODOT

Policy 1F of the Oregon Highway Plan (OHP) addresses state highway performance expectations for planning and plan implementation or amendment. These standards are applicable for all locations on state highways with the exception of areas where alternate mobility standards have been adopted. Revisions to Policy 1F allow for the adoption of alternate standards in metropolitan regions or parts of a region, in Special Transportation Areas (STAs), and in areas with unique environmental and land use constraints. Alternative standards have been adopted in the Portland metropolitan region as described in Table 2.

Action 1F.5 of the OHP mobility policy applies to the development of and general updates to Transportation System Plans and highway facility plans, It states that, where the volume-to-capacity (v/c) ratio is worse than the identified standards in the OHP and transportation improvements are not planned, the performance standard for the highway shall be to improve performance as much as feasible and to at least avoid further degradation of performance if measures to improve performance are infeasible. Action 1F.6 applies to plan and zoning amendments, not TSP updates, and it states that the applicable standard is to "avoid further degradation" when conditions already do not meet the standards in Table 2, and transportation improvements are not planning the TSP to bring performance up to the applicable standards.

Table 2. Mobility Standards

Roadway Jurisdiction	Applicability	Volume/Capacity Ratios 1st Hour	Volume/Capacity Ratios 2nd Hour
ODOT	Regional Centers, Town Centers, Main Streets, Station Communities	1.10	0.99
	I-5 (Marquam-Wilsonville), OR 217, Corridors (Hal Blvd/OR 141, Scholls Ferry Rd/OR 210),Industrial Areas, Employment Areas, Neighborhoods	0.99	0.99
	Pacific Highway (I-5-Tualatin Rd)[1]	0.95	N/A
Washington County	Regional Centers, Town Centers, Main Streets, Station Communities	0.99	0.90
	Other Urban Areas	0.90	0.90

[1] This corridor is classified as an "area of special concern" and the OHP mobility standard will apply to this area until an alternative performance measure is adopted in local plans and approved by the Oregon Transportation Commission.

Note: Alternative mobility standards for the Portland metropolitan region are presented in terms of volume-to-capacity (V/C) ratios in Table 7 under Policy 1F in the updated OHP. The standards are divided into the 1st and 2nd consecutive hours of highest traffic volumes. See the Metro 2040 Growth Concept for descriptions of the land use designations presented in the Table.

Metro

The mobility standards in Table 2 were developed through the transportation planning process in the Metro region and adopted by the Oregon Transportation Commission. It should be noted that Pacific Highway has been classified by Metro as an "area of special concern", and the applicable mobility standards will apply to this area until an alternative performance measure is developed. An alternative measure will be developed cooperatively by Metro and Tigard, and approved by the Oregon Transportation Commission. The RTP designates Pacific Highway as a Major Arterial in the Regional Arterial and Throughway Network, and part Regional Boulevard and part Regional Street in the Regional Design Classification. Accordingly, the planned facility in both the RTP and the Tigard TSP includes a five lane cross-section (four through lanes and left turn lanes). This designation does not preclude additional turning lanes at selected locations where necessary.

Washington County

Table 5 under Policy 6 of the Washington County Transportation Plan presents the maximum volume-to-capacity ratios (V/C) that are targeted and accepted in Washington County. Target performance measures for Regional Centers, Town Centers, Main Streets, and Station Communities (2040 Concept design types) are 0.99 for the 1st hour and 0.90 for the 2nd hour, and 0.90 for both the 1st and 2nd hour in other urban areas. Acceptable performance measures for the 2040 Concept design types are 0.99 for both the 1st and 2nd hour, and 0.99 for the 1st hour and 0.90 for the 2nd hour in other urban areas. For state facilities, these measures are superseded by the alternative mobility standards adopted for the Portland metropolitan region in the updated OHP (see Table 2). The County should be consulted for performance evaluation on County roadways.

Tigard

The City of Tigard currently has no adopted mobility standards. City street improvement standards are provided in 18.810 of the Development Code.

The City of Tigard shares the state and regional goals of providing a balanced transportation system that reduces reliance on automobiles. Among the highly effective strategies to achieve this goal are land use strategies that promote compact urban form that encourage walking, cycling, and transit use. At the same time, intersection performance standards are linked to trip generation and limit the development potential of an area. In this way, the intersection performance targets can effectively preclude the land use strategies needed to support the multi-modal transportation goals.

At adoption of the TSP, Metro and ODOT are working with local jurisdictions to develop strategies that meet the land use vision within the requirements of the state Transportation Planning Rule (TPR). The City of Tigard is

participating in these discussions which are aimed at identifying alternative mobility standards that will protect the function of the state highways as well as other state and regional transportation goals. The City further recognizes that the quality of a transportation system can be measured in many ways, including reliability, safety, and multi-modal mobility.

Street Design

Roadways in Tigard are the primary means of mobility for residents, serving the majority of trips via multiple modes. Pedestrians, bicyclists, public transit, and motorists all use public roads for the vast majority of trips. Therefore, it is increasingly important to plan, design, and build new roadways in a manner that improves multi-modal access and mobility.

The City of Tigard's street design standards ensure that all new streets are constructed as "complete streets" and include facilities for pedestrians and bicycles and also provide drainage and landscaping where appropriate. Because they are reviewed and updated periodically, the City of Tigard's street design standards are located in the city's Community Development Code section 18.800 Street and Utility Improvement Standards[1]. These standards are summarized in Table 3.

The typical roadway cross sections include the following elements: right-of-way, number of travel lanes, parking, bicycle and pedestrian facilities, and other features such as landscape strips. The standards represent the preferred cross-sections for each roadway designation and should be the minimum for new roadways and reconstructed roadways with adequate space available. All roadway improvements should include provision of sidewalks and bicycle facilities per the street design standards.

Access Management

The Oregon Transportation Planning Rule (TPR) defines access management as a set of measures regulating access to streets, roads, and highways from public roads and private driveways. Access points are considered in context with traffic flow, safety, capacity, and speed on the surrounding roadway system. Within developed areas, access management strategies may include shared or consolidated access points, restrictions on access point movements (medians, channelized movements), or closing access points.

Access management provides several benefits, such as reducing crashes and crash rates and increasing capacity on roadways by maintaining vehicle flows and speeds. Well deployed access management strategies can greatly improve travel conditions for pedestrians and bicyclists. Eliminating the number of access points on roadways reduces the number of potential interruptions and conflict points between pedestrians, bicyclists, and cars.

The TPR requires that the spacing of new connections to arterials and state highways be consistent with designated access management categories. These categories vary depending on the functional classification and speed of a given roadway. Roadways on the higher end of the functional classification system (e.g., arterials and collectors) tend to have higher spacing standards, while facilities such as neighborhood routes and local streets allow more closely spaced access points. Similarly, facilities with higher posted speeds have higher spacing standards than facilities with lower posted speeds.

It can be extremely difficult to implement an access management program once properties have been developed along a corridor. Cooperation among and involvement of relevant government agencies, business owners, land developers and the public is necessary to establish an access management plan that benefits all roadway users and businesses.

[1] See Table 18.810.1 in City's Development Code of ROW, street width and other channelization requirements for city streets by classification.

Table 3. City of Tigard Minimum Widths for Street Classifications

Type of Street	Right-of-Way width	Paved Width	Number of Lanes	Min. Lane Width	On-Street Parking Width	Bike Lane Width	Sidewalk Width	Landscape Strip Width (exclusive of curb)	Median Width
Arterial	64'-128'	Varies	2-7 (Refer to TSP)	12'	N/A	6' (New Streets) 5-6' (Existing Streets)	8' (Res & Ind Zones) 10' (Comm. Zones)	5'	12' [1]
Collector	58'-96'	Varies	2-5 (Refer to TSP)	11'	8' [4]	6' (New Streets) [5] 5-6' (Existing Streets) [5]	6' (New Streets) 8' (Existing Streets)	5'	
Neighborhood Route	50'-58'	28'-36'	2	10'	8'	5'-6'	5'-6' [2]	5'	N/A
Local Industrial/Commercial	50'	36'	2			N/A	5'-6' [2]	5'	N/A
Local Residential									
• Under 1500 ADT	54'/50' [3]	32'/28' [3]	2		8' (both sides)	N/A	5'-6' [2]	5'	N/A
• Under 500 ADT	50'/46' [3]	28'/24' [3]	2		8' (one side)				
• Under 200 ADT	46'/42' [3]	24'/20' [3]	2		)No Parking)				
Cul-de-sac bulbs in Industrial and Commercial Zones	50' radius	42' radius	N/A	N/A		N/A			N/A
Cul-de-sac bulbs in Residential Zones	47' radius	40' radius	N/A	N/A		N/A		N/A	N/A
Alley: Residential	16	16			N/A	N/A	N/A	N/A	N/A
Alley: Business	20'	20'			N/A	N/A	N/A	N/A	N/A

The following paragraphs present a discussion of access management spacing standards for ODOT, Washington County, and the City of Tigard.

ODOT

Policy 1F of the Oregon Highway Plan (OHP) provides guidance for managing access and traffic control systems. The access management spacing standards implemented by ODOT address the location, spacing, and type of road and street intersections and approach roads on state highways, and include standards for each highway classification. The standards are administered through Oregon Administrative Rule (OAR) 734, Division 51.[2] Under these rules the minimum access spacing distance increases as either the highway's importance or posted speed increases. Table 4 shows ODOT's spacing standards for state highways in Tigard.

The access spacing standards shown in Table 4 typically apply to new development or redevelopment; existing accesses are usually allowed to remain as long as the land use does not change. As a result, achieving planned access management is a long-term process in which the desired access spacing to a street slowly evolves over time as redevelopment occurs.

Table 4. ODOT Access Spacing Standards

Highway Type	Roadway	Speed Limit	Spacing Standard
Statewide	Pacific Highway (99W)	35 mph	720 feet
	Pacific Highway (99W)	45 mph	990 feet
District	Hall Boulevard (OR 141)	30 mph	350 feet
	Hall Boulevard (OR 141)	35 mph	350 feet
	Hall Boulevard (OR 141)	45 mph	500 feet
	Scholls Ferry Road (OR 210)	35 mph	350 feet
	Scholls Ferry Road (OR 210)	40 mph	500 feet
	Scholls Ferry Road (OR 210)	45 mph	500 feet

For the section of OR 141/Hall Boulevard that is designated as a Special Transportation Area (STA) (MP 2.84-3.84), the following standards apply:

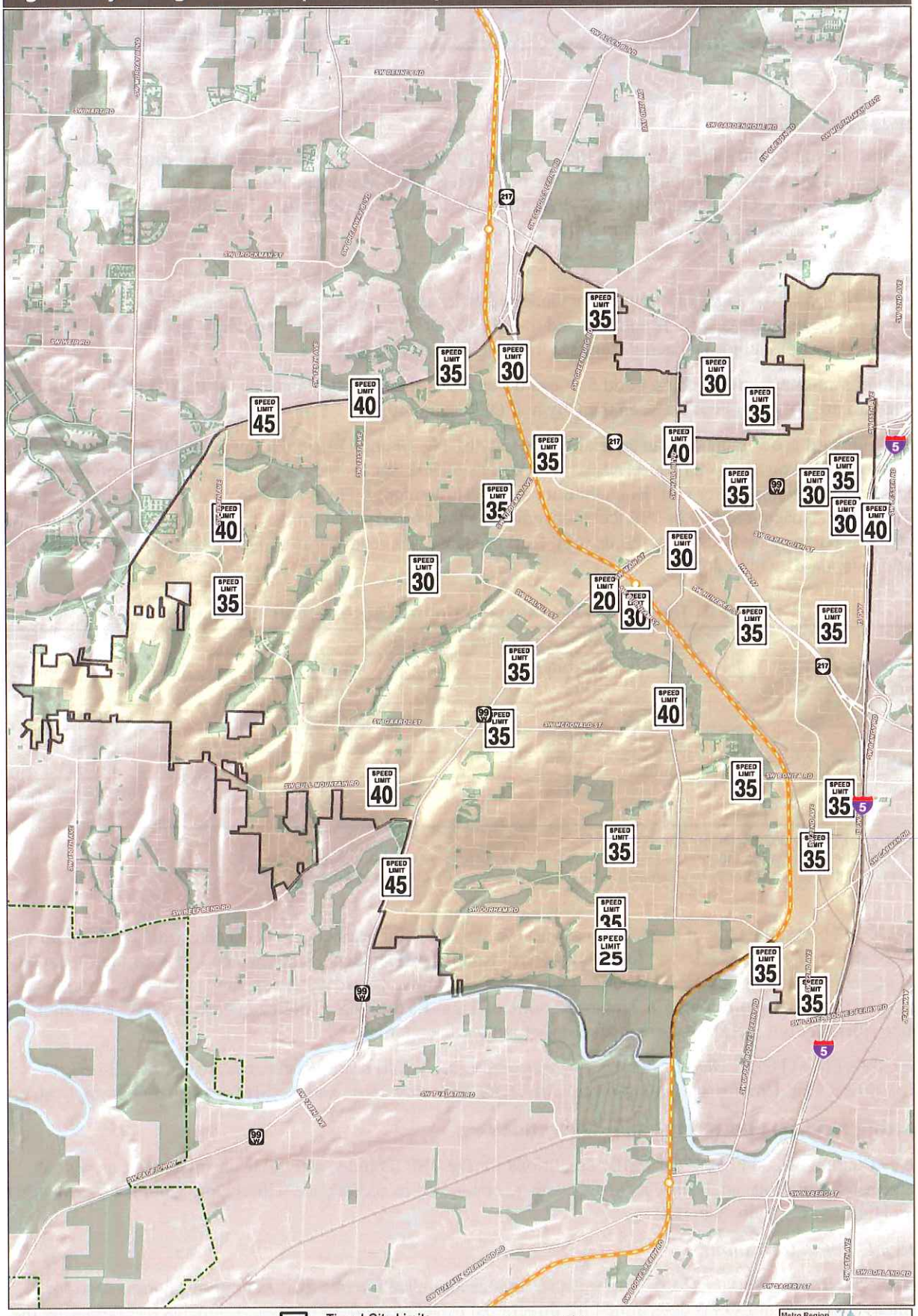
> *Minimum access management spacing for public road approaches is the existing city block spacing or the city block spacing as identified in the local comprehensive plan. Public road connections are preferred over private driveways and in STAs driveways are discouraged. However, where driveways are allowed and where land use patterns permit, the minimum access management spacing for driveways is 175 feet or mid-block if the current city block is less than 350 feet.*[3]

As noted above, ODOT's access spacing standards are a function of roadway classification and posted speed limit. To facilitate better understanding of these standards, Figure 3 is included which shows speed zones on arterials and collectors in the City. Speed zones are set by ODOT' State Traffic Engineer. Speed zones for city streets, county roads and state highways passing through cities are set based on operational considerations, which includes factors such as roadway width, surface, lanes, shoulders, signals, intersections, roadside development, parking, accidents and 85th percentile speed. Oregon's State Speed Control Board (SSCB) hears appeals on ODOT speed zone decisions.

[2] Oregon Revised Statute (OAR) 734, Division 51, was amended in September 2005 to be consistent with August 2005 OHP revisions to Policy 1B. Specifically, the spacing standards in OAR 734-051 were amended to be consistent with the OHP tables in Appendix C, Access Management Standards.

[3] OHP, Appendix C, Tables 13, 14, and 15, Footnote 6.

Fig. 3: City of Tigard - Transportation - Speed Zones



Existing Speed Zone

Tigard City Limits
Commuter Rail
Railroads
Streams
Rivers and Water Bodies

Parks
Urban Growth Boundary

0 0.25 0.5 0.75 Miles

Metro Region

10 Miles

File: Tigard_11x17_Transportation_SpeedZones.mxd Print Date: February 1, 2011

Washington County

The Washington County Transportation Plan does not provide access management and spacing standards. According to Strategy 7.5 under Policy 7 (Transportation System Management) of the Roadway Element, access management and spacing standards are to be implemented as they are established in the Community Development Code. These standards are illustrated in Table 5 below.

City of Tigard

Chapter 18.705 of the Tigard Development Code identifies access requirements and restrictions. The minimum spacing of streets or driveways is summarized in Table 5, along with spacing standards for Washington County. The code does not include a spacing standard for Neighborhood Routes.

Based on a comparison of Tables 4 and 5, it can be seen that the spacing standards for Pacific Highway and Hall Boulevard are not consistent between the City and OHP standards.

Hall Boulevard is designated as an arterial by the City of Tigard and District Highway by ODOT. The Tigard spacing standard on arterials is 600 feet, which exceeds ODOT's standards for the roadway. Therefore, the City's access spacing standards for Hall Boulevard meet ODOT standards. The ODOT standards for Pacific Highway require access spacing at 720 or 990 feet, depending on the posted speed limits. These distances are greater than the City's spacing standards for arterials (600 feet). Because this roadway is under ODOT jurisdiction, the OHP spacing standards would apply.

Table 5. Tigard and Washington County Access Spacing Standards

	Tigard Standards		
Street Classification	Public Street	Driveway	Washington County [1]
Principal Arterial [2]	n/a	n/a	n/a
Arterial	600 feet	600 feet	600 feet
Collector	200 feet	200 feet	100 feet
Neighborhood Street [3]	n/a	n/a	50 feet
Local	125 feet	n/a	10 feet between radii; 25 feet if no radii

[1] Washington County 2020 Transportation Plan
[2] As Principal Arterials in the City are also state highways, access spacing standards are applied by ODOT.
[3] City of Tigard does not currently have an access spacing standard for Neighborhood Streets

As Table 5 shows, the City of Tigard access spacing standards for arterials are consistent with Washington County standards. This is relevant for Scholls Ferry Road and Beef Bend Road, which are Washington County roadways designated as arterials by both Tigard and the County. Tigard access spacing standards for collectors are greater than Washington County's. However, none of Tigard's designated collectors are under Washington County jurisdiction; therefore there is no conflict in these standards.

The City's code (TCDC 18.705 – Access, Egress, and Circulation) requires an access report for all new development that demonstrates compliance with ODOT, County, City, and AASHTO standards as applicable.

Existing Arterial and Intersection Operations

The evaluation of 2008 base year traffic conditions for the TSP included arterial level-of-service, as well as intersection operations analysis. The analyses were conducted in accordance with the procedures described in the 2000 Highway Capacity Manual.

Arterial Traffic Operations

The arterial level-of-service (LOS) analysis provides as an indication of traffic conditions along a corridor segment. The arterial LOS is determined for directional travel along defined street segments by comparing the

observed travel time to the free flow speed (FFS) along roadways of like parameters. Arterial LOS was analyzed using travel time studies conducted by City of Tigard staff in the spring of 2008. The arterial LOS for weekday a.m., and p.m. conditions are depicted in Figures 4 and 5. The travel time data are provided in Appendix D of Volume 3 of the City's TSP.

Weekday AM Peak Period Arterial LOS

The weekday morning travel time runs were conducted between 7:00 and 8:30 a.m. Figure 4 shows that during this time, many of the arterial segments currently operate at LOS D or better. There are several sections that operate at LOS E or F. In general these tend to be located near the freeway interchanges or at approaches to Pacific Highway or other major roads. The specific segments operating at LOS E or F include the following:

- Eastbound Scholls Ferry Road between 121st Avenue and Nimbus Avenue
- Southbound Greenburg Road between Tiedeman and Pacific Highway
- Eastbound Walnut Street approaching Pacific Highway
- Northbound Pacific Highway approaching Gaarde/McDonald; and between Walnut and Highway 217
- Northbound Hall Boulevard between Burnham Street and Pacific Highway
- Eastbound Durham Road approaching Hall Boulevard
- Eastbound and westbound Upper Boones Ferry Road approaching 72nd Avenue.

Weekday PM Arterial LOS

Travel time runs for the weekday evening peak period were conducted between 4:00 and 6:00 p.m. Figure 5 shows several corridor segments operating at LOS E or F. The figure shows several of the short segments operating at LOS F are at or near crossings of Highway 217 and I-5. This illustrates the effect of limited crossing opportunities channeling all travel demand to a few locations, combined with the heavy demand for freeway access at these locations. Segments operating at LOS E or F are listed below.

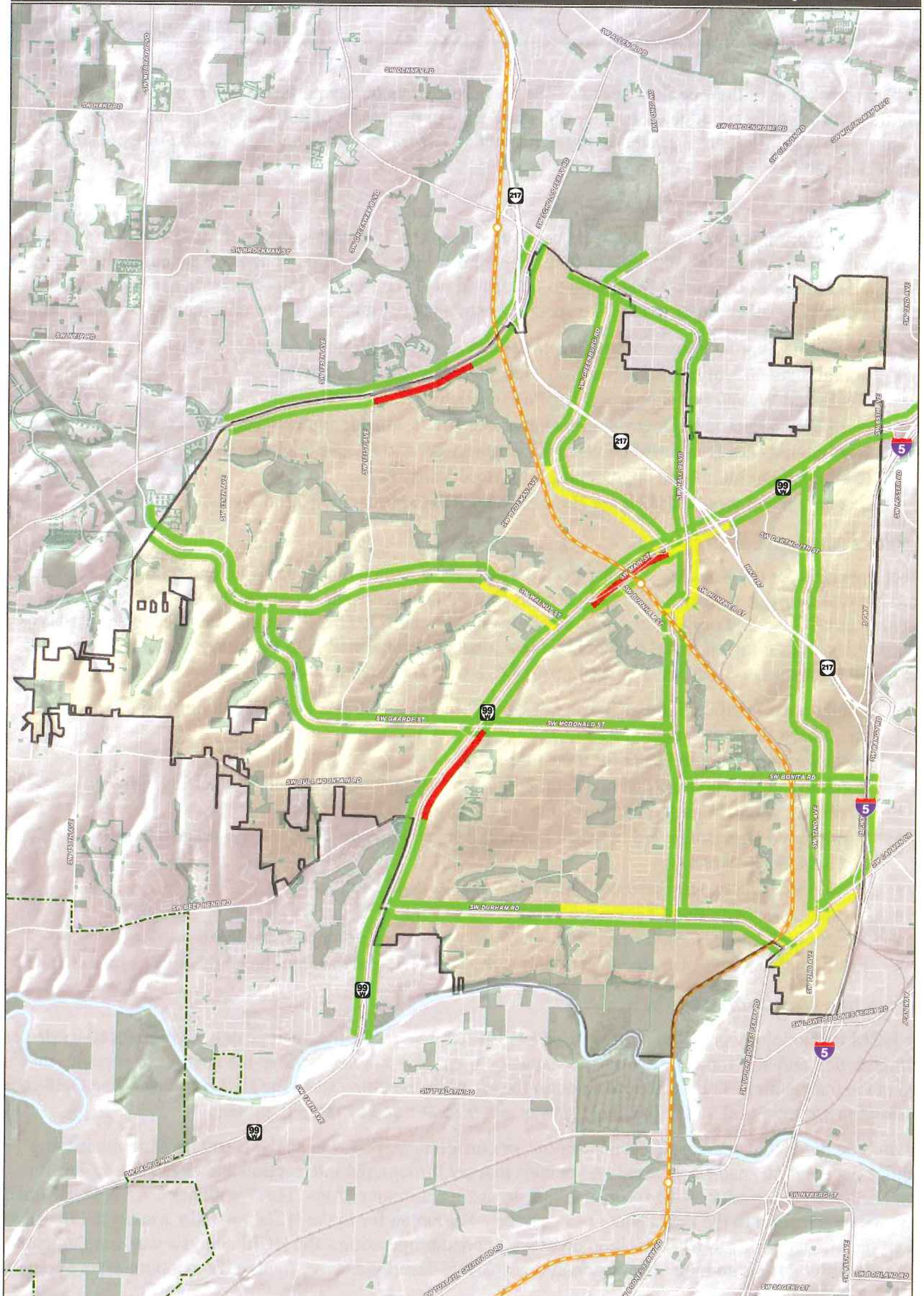
- Southbound Pacific Highway between Gaarde/McDonald Streets and I-5, and northbound between Greenburg Road and Highway 217
- Southwestbound Main Street for the entire length
- Southbound Greenburg Road and southbound Hall Boulevard approaching Pacific Highway
- Greenburg Road in both directions south of the Highway 217 ramps
- Northbound Hall Boulevard between Burnham Road and Pacific Highway, and also between Bonita Road and McDonald Street.
- 72nd Avenue between Dartmouth Street and Highway 217 ramps
- Westbound Bonita Road between I-5 and 72nd Avenue
- Westbound Upper Boones Ferry Road between the I-5 ramp and Durham Road
- Eastbound Scholls Ferry Road between 135th and 121st, and through the Highway 217 interchange.

Intersection Operations Analysis

The HCM methodology provides a measure of LOS which represents the average delay experienced by drivers at an intersection and also reports a volume-to-capacity (v/c) ratio which describes the amount of capacity that is used at the intersection. This section focuses on the v/c ratios resulting from the HCM analysis. The OHP requires a maximum v/c ratio of 0.95 for Pacific Highway and 0.85 at freeway ramp terminals.

It should be noted that at congested intersections or corridors, intersection analysis can result in misleading findings because the analysis is based on vehicles that get through the intersection and does not account for vehicles that are delayed by congestion at adjacent, upstream intersections. This "spillback" of vehicular traffic from one intersection to the next cannot be accurately accounted for in the HCM operations analysis. In order to reflect the effects of this traffic condition on overall corridor operations, the HCM analysis was supplemented with field observations and the arterial operations analysis described above to identify locations where congestion

Fig. 4: City of Tigard - Transportation - Arterial Level of Service - Weekday AM Peak



Arterial LOS

- LOS F
- LOS E
- LOS A to D

- Tigard City Limits
- Commuter Rail
- Railroads
- Streams
- Rivers and Water Bodies
- Parks
- Urban Growth Boundary

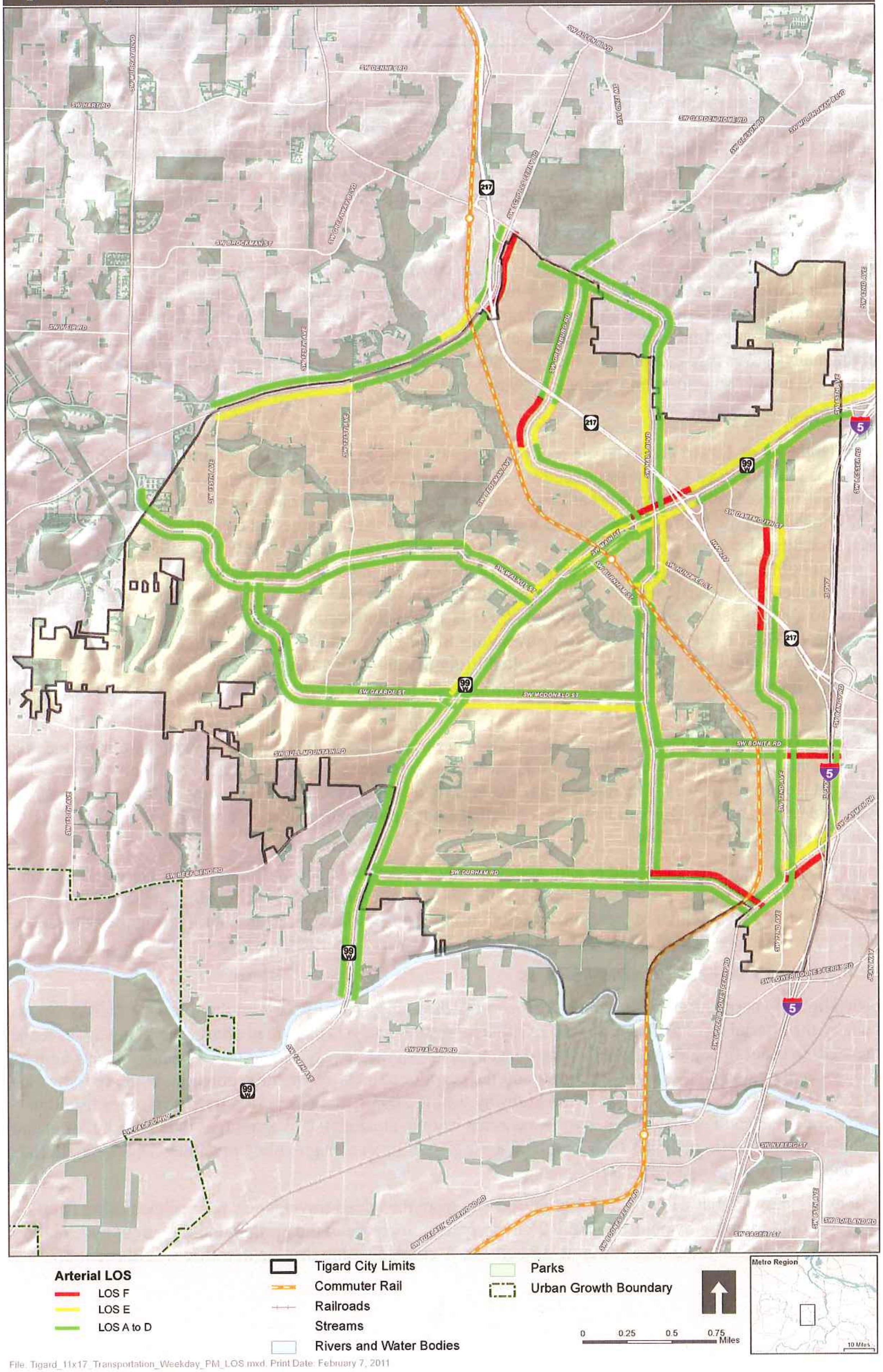
0 0.25 0.5 0.75 Miles

Metro Region

10 Miles

File: Tigard_11x17_Transportation_Weekday_AM_LOS.mxd. Print Date: February 7, 2011

Fig. 5: City of Tigard - Transportation - Arterial Level of Service - Weekday PM Peak



File: Tigard_11x17_Transportation_Weekday_PM_LOS.mxd, Print Date: February 7, 2011

impacts multiple intersections. For each of the corridors studied in the City, the weekday p.m. peak hour intersection operations were depicted in combination with capacity or queuing issues observed under typical conditions. In certain locations a.m. peak hour and Saturday midday peak hour periods were also evaluated. Details of the intersection analyses for all time periods evaluated are included in Appendices D through F of the TSP. Key findings developed from the intersection analysis are presented in the following section.

Summary of Key Operational Findings

The following sections review the performance of key corridors in Tigard, focusing on the a.m. and p.m. peak hours. The corridors (routes) described in this report include the major facilities such as Pacific Highway, Scholls Ferry Road, Hall Boulevard, Greenburg Road, and 72nd Avenue. The evaluations include peak hour intersection operations, queuing estimates, travel time surveys, and general observations. For Pacific Highway a diverted demand analysis was also conducted which estimates the degree of traffic that may be diverting onto other roadways to avoid congestion on Pacific Highway.

Pacific Highway (99W)

Pacific Highway in Tigard is a five-lane roadway carrying up to 51,000 vehicles per day through the City. The roadway is characterized by numerous access points serving commercial properties, which are the predominant land uses. The intersection operations analysis conducted for the TSP revealed capacity issues at several intersections along the highway. During the weekday p.m. peak hour, congested conditions are typically observed in most locations between Durham Road and 72nd Avenue. The intersections at SW Greenburg Road and SW Hall Boulevard both acted as bottlenecks, causing. traffic to back up and reducing capacity at upstream intersections. As a result, peak hour traffic was frequently stop-and-go between SW 72nd Avenue and SW Greenburg Road. In addition to queuing issues on Pacific Highway, there is significant queuing on SW Hall Boulevard at both approaches to Pacific Highway. Recent improvements to the intersections of Pacific Highway with both Greenburg Road and Hall Boulevard have resulted in significant improvements to peak period intersection operations. Improvements included the addition of through lanes on Pacific Highway and separate turning lanes on cross streets.

The Pacific Highway/SW Gaarde Street/SW McDonald Street intersection operates at capacity during the weekday p.m. peak hour. Based on field observations, this intersection is frequently over capacity, with significant side street queues. The intersection analysis reports that the Pacific Highway intersections at SW Royalty Parkway and SW Durham Road are operating with a poor LOS and at a very high v/c ratio. This is consistent with field observations.

The intersection analyses for weekday a.m. and Saturday midday peak periods indicate that the weekday p.m. peak hour is the critical period for most intersections. Exceptions include the Pacific Highway/SW Hall Boulevard intersection, which operates at capacity during the weekday a.m. peak hour. During the Saturday midday peak hour, the exception is Pacific Highway/Highway 217 SB Ramps which operate at capacity.

Pacific Highway Diverted Traffic Analysis

Pacific Highway carries traffic through Tigard, serving thousands of daily trips on the five-lane facility. As was shown by the arterial LOS analysis, as well as the intersection analysis described above, the highway is frequently congested. In order to determine whether the capacity constraints are resulting in travel demand diverting to other roadways, a diversion analysis was performed on the corridor to analyze what the potential increase in traffic would be if more capacity was added to the highway. Using 2005 p.m. peak period traffic volumes from the regional travel demand model, two network scenarios were evaluated: the existing five-lane configuration and a nine-lane configuration. It should be noted that the Regional Street Design policy precludes widening arterials to more than four through lanes plus turning lanes.

The analysis showed that with the increase in capacity from the added travel lanes, the vehicles using Pacific Highway would increase by approximately 25 to 45 percent increase in the northbound direction; and southbound traffic would increase in the range of 20 to 35 percent. A corresponding decline in traffic would occur on

alternative routes. In particular, peak direction (westbound) traffic on the McDonald/Hall/Bonita corridor would decline by approximately 10 percent; on Durham Road, the westbound traffic would decline by 12 to 14 percent.

Scholls Ferry Road

Scholls Ferry Road serves as a border between Tigard and Beaverton and is under the jurisdiction of ODOT and Washington County. Much of the congestion along SW Scholls Ferry Road is associated with the close spacing of high volume, signalized intersections near the Highway 217 interchange. Queues at Nimbus Avenue and Cascade Avenue back into the freeway ramp intersections, causing stop-and-go traffic in the peak direction throughout much of the corridor. Queuing also occurs on the side streets, including 135th Avenue and 121st Avenue.

Hall Boulevard

SW Hall Boulevard (Highway No. 141) connects Beaverton and Tualatin via Washington Square Regional Center in Tigard, with two crossings of Highway 217. Weekday p.m. peak hour intersection analyses were conducted at six intersections south of Highway 217.

In combination with McDonald Street and Bonita Road, Hall Boulevard is a major east/west travel route through the City of Tigard. Traffic along this corridor is highly directional with very long queues occurring in the peak direction while roadway capacity in the other direction is underutilized. The intersection analyses show that the Hall Boulevard intersections at McDonald Street and Bonita Road are over capacity during the weekday p.m. peak hour. This is consistent with field observations. There are significant northbound left-turn queues at Hall Boulevard, with queues sometimes extending to Bonita Road. There are also considerable westbound queues on Bonita Road approaching Hall Boulevard, as Bonita Road is a major route for westbound traffic crossing Highway 217 and Fanno Creek.

The intersection analysis showed the SW Hall Boulevard/SW Durham Road intersection operates acceptably during the a.m. and p.m. peak periods. However, the queuing analyses during the p.m. peak hour shows significant queuing in the westbound direction. This is consistent with field observations.

The weekday a.m. peak hour analysis at the SW Hall Boulevard/SW Durham Road intersection indicate that the morning peak hour is the critical time period for this intersection. During the weekday a.m. peak hour the intersection operates at LOS E with a v/c ratio of 0.92. The analysis indicates extensive queuing in the eastbound and southbound approaches.

Greenburg Road

Greenburg Road is an arterial roadway connecting Hall Boulevard to Pacific Highway and traversing the eastern boundary of the Washington Square Regional Center. The operational analysis revealed considerable queuing along Greenburg Road between Tiedeman Avenue and Hall Boulevard. There are four relatively closely spaced, high volume signalized intersections between the Highway 217 southbound ramps and SW Locust Road (inclusive). Also, there is a double left-turn lane at the southbound approach to the Highway 217 southbound ramps, but lane utilization is not well balanced; therefore, the dual turn lanes do not operate as efficiently in the field as the analysis suggests. Due to high traffic volumes accessing the freeway and the retail areas around Washington Square, there is considerable congestion throughout the corridor.

SW 72nd Avenue

SW 72nd Avenue is a north/south arterial connecting Pacific Highway with Tualatin and Durham at Lower Boones Ferry Road and Bridgeport Village. With numerous connections to I-5 (Pacific Highway, Dartmouth Street, Highway 217, Upper Boones Ferry/Carman, and Bridgeport Road), 72nd Avenue is sometimes used as a cut-through route when I-5 is congested. The analysis of weekday p.m. peak hour intersection operations revealed that 72nd Avenue is at or exceeding capacity at the intersections with Dartmouth Street and at Bonita Road. The 72nd Avenue/Dartmouth Street intersection is currently a 4-way stop controlled intersection. Signal warrants are met under existing conditions. If the intersection were signalized, it would operate acceptably.

Queues at the 72nd Avenue/Bonita Road intersection are extensive, especially in the westbound direction. During the weekday p.m. peak hour, queues frequently back up as far as Bangy Street, approximately 1,600 feet to the east. The intersection analysis indicates that the intersections between Hampton Street and the southbound Highway 217 Ramps/Varns Street (inclusive) operate acceptably. However, as previously noted, the analytical methods do not capture the downstream impacts of congested intersections. It is known from field observations that this section of 72nd Avenue is frequently congested due to the close spacing of signalized intersections.

Safety

Transportation must consider the goals of enhanced safety when plans are developed. Historic crash data from roadways within Tigard reveal that the highest crash locations are consistently on state or county roads, including Pacific Highway, Scholls Ferry Road, and the Highway 217 and I-5 ramp intersections. Such data were used as a key criterion in the evaluation of potential improvement projects for the 2035 TSP.

In addition to including safety issues as a primary factor in identifying and prioritizing transportation investments, safety considerations are incorporated in the City's design standards for transportation facilities. These include design standards for intersections, traffic control devices, and street cross section elements.

For this report, the evaluation of recent collision history focuses on two primary data sources - ODOT and Washington County. These two jurisdictions both maintain indexes of high priority safety locations. ODOT and Washington County, evaluate crash histories in Tigard with a broader context, and compare intersections in Tigard with other locations in each jurisdiction. The ODOT Safety Priority Index System (SPIS) list is summarized below in Table 6.

Washington County is responsible for roadways in the county, which includes both higher and lower order facilities. The SPIS list for Washington County includes several locations on arterials such as Scholls Ferry Road and Greenburg Road, but often at intersections with lower order facilities. Table 7 lists those locations, as compared to other county roadways.

ODOT SPIS Analysis

ODOT maintains the SPIS for identifying locations on state highways where consideration should be given to implementing improvements to reduce crash frequency. The SPIS index mathematically combines crash frequency, crash rate, and crash severity to yield one score per location. A roadway segment becomes a SPIS site if a location has three or more crashes or one or more fatal crashes over the three - year period. Under this method, all state highways are analyzed in 0.10 mile segments to determine SPIS sites. Each year, a list is generated of the top ten percent of SPIS sites, and the top 5 percent of sites are further investigated for safety issues. Table 6 identifies the eighteen ODOT 2008 SPIS sites located in Tigard.

Table 6. ODOT SPIS Listing 2008

Intersection	SPIS Score	# Crashes	Ranking
Highway 99W/SW 64th Avenue/I-5 Southbound Ramps	80.37	41	5%
Highway 99W/SW 72nd Avenue	77.29	49	5%
Highway 99W/SW Garden Place (SW Warner Avenue)	77.18	53	5%
SW Scholls Ferry Road/SW Cascade Avenue SB Ramp	71.60	56	5%
Highway 99W/SW Walnut Street	59.86	25	5%
Highway 99W/SW Gaarde Street/McDonald Street	59.42	48	5%
Highway 99W/SW Durham Road (SW 116th Avenue)	57.47	35	5%
Highway 99W/SW 78th Avenue	56.86	26	5%
Highway 99W/SW Royalty Parkway	55.08	33	5%
Highway 99W/SW Greenburg Road	55.97	32	5%
I-5 Northbound Ramp/SW Upper Boones Ferry Road	55.93	27	5%
I-5 Southbound Ramp/SW Upper Boones Ferry Road	55.09	22	5%

Table 6 Cont. ODOT SPIS Listing 2008

Intersection	SPIS Score	# Crashes	Ranking
Highway 217/Highway 99W WB Ramp	55.04	11	5%
I-5 Northbound Off-Ramp/North of SW Bonita Road	53.04	22	10%
Highway 99W/SW Canterbury Lane	52.82	29	10%
Highway 99W/SW Fischer Road	50.38	27	10%
Highway 99W/SW Beef Bend Road	49.82	20	10%
Highway 99W/SW Bull Mountain Road	47.12	26	10%

Source: 2008 Oregon Department of Transportation Top 5% and 10% SPIS sites

As shown in the table, there are several locations on ODOT's SPIS list that were also identified in Table 6 with high crash frequencies. Specifically, the following intersections are identified in both Table 5 and Table 6: the Pacific Highway intersections with SW 72nd Avenue, SW Hall Boulevard, SW Greenburg Road, SW Gaarde Street, SW Bull Mountain Road, and SW Royalty Parkway; and, SW Scholls Ferry Road/SW Cascade Avenue.

Washington County SPIS

Washington County also maintains a separate SPIS listing that ranks 275 high accident locations county-wide. In Washington County the SPIS number and rank are based upon the number, rate and severity of accidents at a particular location. The 2004-2006 listing is the most current. Table 7 shows the Washington County SPIS sites in the City of Tigard which have a SPIS score above the threshold for further investigation. The table also shows the previous SPIS ranking (2002-2004) and SPIS ranking identified in the previous TSP (1997-1999).

Table 7. Washington County Safety Priority Index System (SPIS) Intersection Ranking

	2004-2006 SPIS		Past Rankings	
Intersection	# Crashes	Ranking	2002-2004 Ranking	1997-1999 Ranking
SW Scholls Ferry Rd/SW 121st Ave-Boones Bend Dr	40	27	14	52
Highway 99W/SW Bull Mountain Rd	40	48	66	33
SW Scholls Ferry Road/SW 125th Ave	29	50	45	139
SW Scholls Ferry Road/SW Conestoga Drive	27	58	24	143
SW Scholls Ferry Road/SW 135th Avenue	36	59	116	77
SW Scholls Ferry Road/SW Nimbus Avenue	46	60	19	9
SW Greenburg Road/SW Washington Square Road	22	63	157	--
Highway 99W/SW Beef Bend Road	23	65	101	36
SW Scholls Ferry Road/SW Barrows Road (East)	26	108	52	74
SW Hall Boulevard/SW Locust Street	17	149	259	208
SW Hall Boulevard/SW Hemlock Street	4	164	--	--
SW Durham Road/SW 113th Avenue	4	197	--	--
SW Barrows Rd/SW 154th Avenue	8	245	--	--
SW Hall Boulevard/SW Greenburg Rd – SW Oleson Road	10	242	136	94
SW Greenburg Road/SW Locust Street	9	267	--	92

Sources: 2004-2006, 2002-2004 and 1997-1999 Washington County Safety Priority Index System (SPIS) Lists

As shown in the table, the top ten intersections for the 2004-2006 rankings (with the exception of the SW Greenburg Road/SW Washington Square Road intersection) have consistently been on the Washington County SPIS list, as shown in the historical rankings.

The Pacific Highway/SW Bull Mountain Road intersection appears on all three of the tables above, indicating the importance of this intersection to local and state jurisdictions. There was a recent eastbound right-turn lane project completed that may improve safety at the intersection; its effects are not shown in the available data. Several other

intersections appear on two of the tables above, indicating potential safety issues at locations pertinent to different jurisdictions.

Rail Crossings

Presently all the grade crossings of the railroad and public streets in Tigard are controlled by gated crossings with the exception of the Pacific Highway viaduct. There are a few private crossings which are not gated. Grade separation of the railroad crossings has not been determined to be necessary at any of the existing crossings. The highest volume at-grade crossing in Tigard is on Scholls Ferry Road. Because of the close proximity of the rail crossing to the Highway 217 interchange, potential future improvements on Highway 217 should consider the operational need of Scholls Ferry Road south of Highway 217[4].

Planned Street Improvements

This section presents a summary of key planned street and highway improvements in the City of Tigard as excerpted from the TSP. Information presented includes projects in the State Transportation Improvement Program (STIP) and the Regional Transportation Plan (RTP). A short discussion of results from the 2007 *Highway 99W Improvement and Management Plan* is also included.

State Transportation Improvement Program (STIP)

The State Transportation Improvement Program (STIP) is the programming and funding document for transportation projects and programs statewide. The projects and programs undergo a selection process managed by ODOT Regions or ODOT central offices. The document covers a period of four years and is updated every two years. There are six projects – a mixture of roadway capacity projects and bike and pedestrian facilities – that are programmed in Tigard in the Final 2010-2013 STIP, shown in Table 8. The final three projects in the table are not located within the city but are major projects that are nearby and will affect the city's transportation system.

Table 8. 2010-2013 Final Approved STIP

Project Roadway	Project Location	Project Description	Project Type	Project Cost	Project Year
OR 99W	Hall Blvd (MP 8.69 to MP 8.93)	Widen intersection and improve access management for safety	MODERN	$7.2 million	2010
Washington Square Regional Center Trail	Hall Blvd to Greenburg Rd	Construct multiuse trail	BIKEPED	$432,000	2011
Main Street	Rail Corridor to OR 99W	Green street retrofit, pedestrian amenities, streetlights	MODERN	$2.8 million	2011
SW Greenburg Road	Washington Square/Tiedeman	Widen road to five lanes	MODERN	$1.9 million	2011
Fanno Creek Trail	Hall Blvd Crossing	Project development prior to construction	BIKEPED	$401,000	2010
OR 99W	Beef Bend Road	Construct southbound right turn lane	SAFETY	$1.3 million	2012

[6] Outside the 20 year perspective of the TSP, it may become necessary to consider a grade separation of the railroad crossing. While not part of the TSP, it suggests that this concept should be considered in future planning of the Scholls Ferry Corridor. A grade separation concept may include a viaduct Scholls Ferry Road from Highway 217 to south of Nimbus. Urban interchanges would need to be designed for Nimbus and Cascade. This viaduct approach may preclude the need for seven lanes on Scholls Ferry Road. This type of alternatives analysis would be necessary in the project development of any Scholls Ferry Road widening, Highway 217 widening and/or rail crossing changes.

Table 8 Cont. 2010-2013 Final Approved STIP

Project Roadway	Project Location	Project Description	Project Type	Project Cost	Project Year
OR 99W	Gaarde/McDonald Road	Intersection improvements	MODERN	$4 million	2012
OR 99W	I-5 SB Off Ramp	Add an additional lane northbound from 68th to 64th	SAFETY	$907,000	2012
OR 99W	I-5 NB Off Ramp	Add additional lane off I-5 onto NB 99W from 69th Avenue/Barbur Blvd	SAFETY	$1.3 million	2012

Metro 2035 Regional Transportation Plan (RTP)

The federal component and update of the Regional Transportation Plan (RTP) was approved by the Metro Council and Joint Policy Advisory Committee on Transportation (JPACT) in December 2007. The US Department of Transportation approved it in February 2008, following approval of air-quality analysis. The update was spurred by regulatory changes made by the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The federal RTP was subsequently amended and a "state RTP" was adopted in June 2010.

The 2035 Regional Transportation Plan is the blueprint that guides investments in the region's transportation system to reduce congestion, build new sidewalks and bicycle facilities, improve transit service and access to transit and maintain freight access. Three studies were undertaken as part of the RTP update that have implications for the assessment of HCT station communities in Tigard. These include the High Capacity Transit System Plan (HCT), the Transportation System Management and Operations Plan (TSMO), and the Freight Plan. These will need to be examined as the HCT land use planning process unfolds.

There are 51 projects in Tigard included in the adopted 2035 RTP Financially Constrained System List of Projects and Programs. They are presented below in Table 9.

Table 9. 2035 RTP Financially Constrained System List – Projects and Programs in Tigard

Project Roadway	Project Location	Project Description	Project Cost (Year of Expenditure $)	Project Time
Washington Square Connectivity Improvements	Local street locations	Increase local street connections at Washington Square Center based on recommendations in Regional Center Plan	$14.0 million	2018-2025
OR 217 Overcrossing – Cascade Plaza	Nimbus to Locust	Provide a new connection from Nimbus to Washington Square south of Scholls Ferry Road	$10.5 million	2018-2025
Greenburg Rd Improvements (I)	Shady Lane to North Dakota	Widen to 5 lanes with bikeways and sidewalks, including bridge replacement	$21.2 million	2008-2017
Washington Square Regional Center Pedestrian Improvements	Various locations	Improve sidewalks, lighting, crossings, bus shelters, and benches	$11.6 million	2018-2025
Greenburg Rd Improvements (II)	Tiedeman Ave to OR 99W	Widen to 5 lanes	$30.4 million	2018-2025
OR 217 Overcrossing	Hunziker Rd to 72nd Ave	Re-align Hunziker Rd to meet Hampton Street at 72nd Ave and remove existing 72nd/Hunziker Rd intersection	$19.5 million	2018-2025

Table 9 Continued. 2035 RTP Financially Constrained System List – Projects and Programs in Tigard

Project Roadway	Project Location	Project Description	Project Cost (Year of Expenditure $)	Project Time
Durham Rd Improvements	Upper Boones Ferry Rd to Hall Blvd	Widen to 5 lanes	$31.2 million	2008-2017
Walnut St Extension	OR 99W to Hunziker Rd	Extend street east of OR 99W to connect to Hunziker Rd (PE phase)	$5.6 million	2008-2017
72nd Ave Improvements (I)	OR 99W to Hunziker Rd	Widen to 5 lanes with bikeways and sidewalks, including bridge replacement	$75.4 million	2008-2017
Dartmouth St Improvements	72nd Ave to 68th Ave	Widen to 4 lanes with turn lanes and sidewalks	$6.5 million	2008-2017
Tigard Town Center Pedestrian Improvements	Throughout Town Center area	Improve sidewalks, lighting, crossings, bus shelters and benches throughout the Town Center including OR 99W, Hall Blvd, Main St, Hunziker, Walnut, and neighborhood streets	$9.9 million	2018-2025
Nimbus Ave Extension	Nimbus Ave to Greenburg Rd	2 lane extension with sidewalks and bike lanes	$9.5 million	2018-2025
Washington Square Regional Center	Hall Blvd to OR 217	Complete shared-use path construction	$2.7 million	2008-2017
Durham Rd Improvements	Hall Blvd to OR 99W	Widen to 5 lanes with bikeways and sidewalks	$61.8 million	2018-2025
Regional Trail Gap Closure	Various locations on trails	Fill in gaps in regional trail network, including Fanno Creek, Washington Square Loop and Westside Trails	$10.2 million	2008-2017
Upper Boones Ferry Intersection	Durham Rd to I-5	Reconfigure intersection of Durham & Upper Boones Ferry to create a through route between Durham and I-5/Carmen Interchange; 2nd NB turn lane at 72nd/Carmen; 72nd/Boones Ferry given Boones Ferry/72nd widened to five lanes; EB right turn lane at Carmen/I-5 SB	$14.3 million	2008-2017
Greenburg Intersection Improvements	Hall Blvd to Tiedeman Ave	2nd NB turn lane, modify signal timing at Greenburg/Oleson/Hall; install boulevard treatment at Greenburg/Washington Square Rd; improve geometry/alignment and extend cycle length at intersection of Greenburg/Tiedeman	$14.1 million	2008-2017
OR 99W Intersection Improvements	68th Ave to Beef Bend Road	Provide increased capacity at priority intersections, including bus queue bypass lanes in some locations, improved sidewalks, priority pedestrian crossings, and an access management plan, while retaining existing 4/5-lane facility from I-5 to Durham Rd	$29.1 million	2008-2017
Scholls Ferry ATMS	From Hall Blvd to Murray Blvd	Install integrated surveillance and management equipment	$1.6 million	2008-2017
Scholls Ferry Rd Improvements	From OR 217 to 121st Ave	Widen to 7 lanes with bike lanes and sidewalks	$40.0 million	2018-2025

Table 9 Continued. 2035 RTP Financially Constrained System List – Projects and Programs in Tigard

Project Roadway	Project Location	Project Description	Project Cost (Year of Expenditure $)	Project Time
Washington Square Regional Center Pedestrian Improvements	In Washington Square Regional Center	Complete 7,400 feet of sidewalk improvements	$13.3 million	2008-2017
Locust Ave Bike	From Hall Blvd to 80th Ave	Complete 1,650 feet of bike lanes in Regional Center	$5.1 million	2008-2017
Greenburg Rd Bike	From Hall Blvd to OR 217	Complete 3,400 feet of bike lanes in Regional Center	$5.3 million	2008-2017
108th Ave Extension	Between existing sections in Tigard and Tualatin	Pedestrian bridge over Tualatin River and connecting paths.	$6 million	2026-2035
McDonald Street Improvements	From Hall Blvd to 99W	Construct turn lanes & intersection improvements; add bike lanes & sidewalks in gaps	$16.2 million	2018-2025
Hall Blvd Improvements (1)	From Locust Street to Durham Road	Widen to 3 lanes; build sidewalks & bike lanes; safety improvements	$19.2 million	2008-2017
Regional Bicycle Improvements	Various locations	Make spot improvements on key low-volume, low speed through-routes to facilitate bike & pedestrian travel; identify them as bike/pedestrian routes	$5.9 million	2008-2017
High Capacity Transit Planning	From Downtown Portland to Sherwood	Identify alignments, potential station locations, etc.	$7.4 million	2008-2017
Hall/Hunziker/Scoffins Intersection Realignment	Hall Blvd in vicinity of Hunziker St and Scoffins St intersections	Realign offset intersection to cross intersection to alleviate congestion and safety issues	$7.4 million	2008-2017
Greenburg/Tiedeman/North Dakota Reconfiguration	Greenburg Rd from Tiedeman Ave to North Dakota St	Realign one or more streets to improve intersection configurations, railroad crossings & creek crossings	$14.8 million	2008-2017
Downtown Circulation Plan Implementation	Downtown Tigard within OR 99W, Hall Blvd and Fanno Creek	Acquire ROW, construct streets and streetscape improvements in downtown Tigard	$5.9 million	2008-2017
Pedestrian Improvements	Multiple locations in Tigard	Fill gaps in sidewalk and pedestrian network	$7.4 million	2008-2017
Neighborhood Trails & Regional Trail Connections	Multiple locations in Tigard	Construct high priority neighborhood trails to regional trails, sidewalks and transit	$7.4 million	2008-2017
Portland & Western Rail Trail	From Tiedeman Ave to Main St	Construct trail along portion of abandoned rail line	$1.5 million	2008-2017
Walnut Street Improvements	From OR 99W to 116th Ave	Widen to 3 lanes; build sidewalks & bike lanes; safety improvements	$17.8 million	2008-2017
Greenburg Road Improvements (III)	From Gormartin Lane to Washington Square Rd	Widen to 5 lanes with bike lanes and sidewalks	$46.6 million	2026-2035
Hall Blvd Improvements (II)	From Scholls Ferry Rd to Durham Rd	Widen to 5 lanes with bike lanes and sidewalks	$173 million	2018-2025

Table 9 Continued. 2035 RTP Financially Constrained System List – Projects and Programs in Tigard

Project Roadway	Project Location	Project Description	Project Cost (Year of Expenditure $)	Project Time
OR 217/72nd Ave Interchange Improvements	OR 217/72nd Ave Interchange	Complete interchange reconstruction with additional ramps and overcrossings	$39.6 million	2018-2025
Greenburg Road Improvements (IV)	From Tiedeman Ave to OR 99W	Widen to 5 lanes	$30.4 million	2018-2025
Bonita Road Improvements	From Hall Blvd to Bangy Rd	Widen to 4 lanes	$53.3 million	2008-2017
72nd Ave Improvements (II)	From Hunziker Rd to Bonita Rd	Widen to 5 lanes with bikeways and sidewalks	$41.7 million	2008-2017
72nd Ave Improvements (III)	From Bonita Rd to Durham Rd	Widen to 5 lanes with bikeways and sidewalks	$22.8 million	2008-2017
Dartmouth Street Extension	From Durham Rd to Hunziker Rd	3 lane extension, new OR 217 overcrossing	$118.9 million	2018-2025
Hall Blvd Extension	From Durham Rd to Tualatin	Extend Hall Blvd across Tualatin River	$176.7 million	2018-2025
Washington County Commuter Rail Frequency improvements	WES line	Beaverton to Wilsonville frequency and span of service improvements. Will require capital improvements including DMUs.	$370 million	2008-2017
High Capacity Transit: Barbur / 99W Corridor	From Portland to Tigard or Sherwood	Portland to Tigard/King City HCT Line Assumes expansion of existing bases or 3rd LRT operating base as part of project. Continue work as part of the HCT System Expansion Policy.	$2.45 billion	2008-2017
I-5/OR 217 Interchange Phase 2	I-5/OR 217 Interchange	Construct southbound OR 217 to SB I-5 ramp; southbound I-5 to Kruse Way loop ramp.	$74 million	2008-2017
OR 99W Transportation System Management and Operations	OR 99W	Implement new Transportation System Management and Operations projects on OR 99W.	$36.6 million	2008-2017
OR 217 Improvements	From US 26 to I-5	Metro, ODOT, Washington County, City of Tigard and City of Beaverton participated in a joint study to explore improvements for OR 217 that improve safety and produce substantial operational and reliability improvements at a relatively low cost. Consistent with the Oregon Transportation Plan and the State Highway Plan, it is the intention of the partners to jointly pursue projects identified in the study and pursue additional cutting edge technological, operational and strategic capital improvements to meet identified needs in this corridor. This project would be for aggressive implementation of system management and operational improvements	$151.9 million	2018-2025
I-5 to 99W replacement projects	N/A	Construct improvements consistent with recommendations from I-5/99W connector process.	$14.8 million	2008-2017

City of Tigard Highway 99W Improvement and Management Plan (2007)

The *Highway 99W Improvement and Management Plan* was completed in 2007 to address projected growing demand and deteriorating operations on Pacific Highway (OR 99W). These conditions had been identified in the RTP, including plans for mixed-use development and other land use and transportation measures designed to mitigate growth. The *Highway 99W Improvement and Management Plan* addressed transportation measures called for in the RTP for the portion of the highway reaching from the I-5 interchange to SW Durham Road.

A process considered three alternatives – Alternative A (Partial Widening), Alternative B (Access Management Strategy), and Alternative C (Full Widening). Given evaluation criteria that included safety and convenience for alternative modes, adequate vehicle storage (queuing), freight accessibility, access spacing standards, and minimized property impacts and cost, Alternative B (Access Management) emerged as the preferred concept.

Features of Alternative B (Access Management) include:

- Access would be more strictly managed throughout the study area corridor rather than just at the interchange areas around I-5 and OR 217.
- Concept implementation relies primarily on two types of access management: raised medians and driveway closures, consolidation, or relocation.
- Raised medians are proposed along 40% of the study area corridor at locations north of Gaarde/McDonald Street. Drivers would be allowed to make U-turns at intersections, but additional width may be required and this will be addressed during preliminary design and engineering. Final design and implementation needs to be coordinated with Tualatin Valley Fire and Rescue to assure acceptable emergency vehicle access.
- Driveway management evaluated in the alternatives analysis focused on properties with multiple driveways, with access to side streets, or within 200 feet of intersections. This management measure is only in the planning stages and a formal Access Management Plan still needs to be developed, which can be done in conjunction with construction project development or on its own.
- For pedestrians and bicyclists, install sidewalks where there are gaps in the system in the study area corridor, upgrade sidewalks to have four-foot landscaping strips and eight-foot pedestrian zones, and install a signalized pedestrian activated crossing at the intersection with Watkins Avenue. Install six-foot bike lanes where there are gaps in the system and sign sections where bicyclists need to share the sidewalk with pedestrians.
- Transit improvements include relocation of bus stops and queue bypasses at five intersections (68th Avenue, Dartmouth Avenue, Hall Boulevard, Walnut Street, and Gaarde, McDonald Street)
- Although this alternative does not feature the type of roadway widening proposed by the other alternatives, it does propose widening the following intersections to allow for new turn or through lanes and/or transit queue bypass lanes:
    - 68th Avenue – transit bypass lane
    - Dartmouth Avenue – transit bypass lane, southbound through lane
    - Hall Boulevard – bypass lane, westbound turn lane (completed)
    - Greenburg Road – eastbound/westbound left-turn lanes (completed)
    - Gaarde/McDonald – transit bypass lane, northbound/southbound left-turn lanes, eastbound/westbound through lanes, eastbound/westbound left-turn lanes
    - Canterbury – westbound left-turn lane
    - Beef Bend Road – southbound right-turn lane
    - Durham Road – northbound left turn lane.

The TSP update incorporates recommendations from the Highway 99W Plan including the designation of a maximum 5-lane cross-section through Tigard (this does not preclude adding turning lanes where needed). This designation differs from the recommendations of the Washington County Transportation Plan which calls for a 7-lane cross-section.

Future Traffic Volumes

Development of long-term (2035) transportation system forecasts relied heavily on the Metro Travel Demand Model. The model predicts future travel needs based on forecast housing and population. The model also incorporates planned improvements to the transportation system. Future transportation conditions were evaluated based on the forecast travel demand and planned improvements. Further information is provided in Technical Memorandum #4: Transportation Needs and Deficiencies included in the Volume 3 Technical Appendix of the City's TSP.

Growth Assumptions for Downtown

The City of Tigard plans for increased residential and commercial density in Downtown Tigard. These planned changes in downtown, along with the City's land use strategy to increase mixed-use development, are intended to mitigate the strain on the east/west roadways by shortening home-to-work trips, supporting transit service, and making walk/bike trips more viable for work, shopping, and other activities.

The City's aspirations for growth have not yet been incorporated into the Metro travel demand model. As a result, the 2035 model forecast underestimates the travel demand to and from downtown. While this is a meaningful disparity, it was determined that the potential negative impacts of this disparity are lessened by the following considerations:

- The intent of the higher density, mixed use development is to accommodate a higher proportion of travel demand by non-automobile travel modes.
- The most critical need for a higher density downtown will be the provision of multiple access points and an efficient overall circulation pattern,
- The current planning process for downtown includes a grid of two-lane streets to create and preserve a safe, efficient and pedestrian-friendly circulation system. Larger street cross sections would conflict with these objectives, even if travel demand modeling indicated a desire for more automobile capacity.
- The arterial streets providing access to Downtown (Pacific Highway, Hall Boulevard, Greenburg Road) are already planned for their maximum roadway width of five lanes. The City does not intend to increase the roadway footprints. If the downtown growth requires specific capacity improvements at critical intersections, those could be developed and are not dependent on inclusion in the TSP.

Given these considerations, emphasis was placed on ensuring efficient access and connectivity for downtown, as well as planning for improved pedestrian, bicycle, and transit access.

Future Travel Demand

The forecast growth in motor vehicle travel demand during the weekday p.m. peak hour was determined by comparing forecasts for 2035 travel demand to the 2005 base year. The net increase in weekday p.m. peak hour travel demand on the study corridors is depicted in Figure 6. As Figure 6 shows, forecast 2035 weekday p.m. peak hour travel demand is expected to grow throughout Tigard, with the highest increases on large segments of 72nd Avenue, Durham Road, Gaarde Street, Walnut Street, and Boones Ferry Road.

Future Traffic Operations

For the purpose of the traffic analysis, the forecast 2035 traffic volumes were modified according to the procedures described in the National Cooperative Highway Research Program (NCHRP) Report 255. Directional

demand-to-capacity (d/c) ratios were calculated for the key corridors in the plan area. The capacity is based on the link capacity assumptions in the travel demand model.

Figure 7 shows the results of the demand-to-capacity analysis for the recommended projects. Maps illustrating these projects and a complete project list are included in Appendix A. Based on this analysis, even with the recommended projects and if household and job growth occurs as forecast in the Metro model, the following sections of roadways will exceed their capacity during the weekday p.m. peak hour by 2035:

- Scholls Ferry Road, westbound from Nimbus Avenue to Springwood Drive;
- Greenburg Road, northbound from Beaverton-Hillsdale Highway to 91st Avenue,
- Greenburg Road, southbound through the interchange with OR 217,
- Walnut Street, eastbound from Barrows to 135th Avenue;
- Nimbus Avenue, northbound from the southern terminus to Scholls Ferry Road;
- Hall Boulevard; southbound from the rail road to Durham Road, additionally a short northbound section between Bonita Road and McDonald Street;
- 85th Avenue, in both directions south of Durham Road,
- Bonita Road, westbound from 72nd Avenue to Hall Boulevard;
- 72nd Avenue, southbound from Upper Boones Ferry Road to the southern city limits,
- Bull Mountain Road, westbound from Pacific Highway to 150th Avenue; and,
- Upper Boones Ferry Road, southbound from 72nd Avenue to south city limits.

Recommended Roadway Network

The adopted TSP identifies a recommended roadway system that is intended to serve all travel modes when built to meet current design standards. All new roads, widening, or other major roadway improvements will include pedestrian and bicycle facilities consistent with the City's street standards. As such, many projects identified as roadway improvements represent significant improvements to the bicycle, pedestrian, and transit systems. Appendix A includes graphics and a detailed project list that illustrates the planned roadway network, including new roadways, improvements to existing roads, and intersection projects. Bicycle, pedestrian and transit improvements are also shown in the graphics and included on the list.

The most numerous type of roadway project is the intersection improvement. These may include such treatments as traffic signals installation or modifications, roundabouts, or turn lanes. A more detailed analysis at each individual location will be required to identify specific appropriate treatments.

"Complete Streets" projects are those that are planned to upgrade existing streets with the inclusion of sidewalks and bicycle facilities, but without increasing motor vehicle capacity. However, any new roadway, road extension, or roadway widening will also be multi-modal "Complete Street" projects that include sidewalks and bicycle facilities. Figure 8 shows the future right-of-way needs for existing and future roadways.

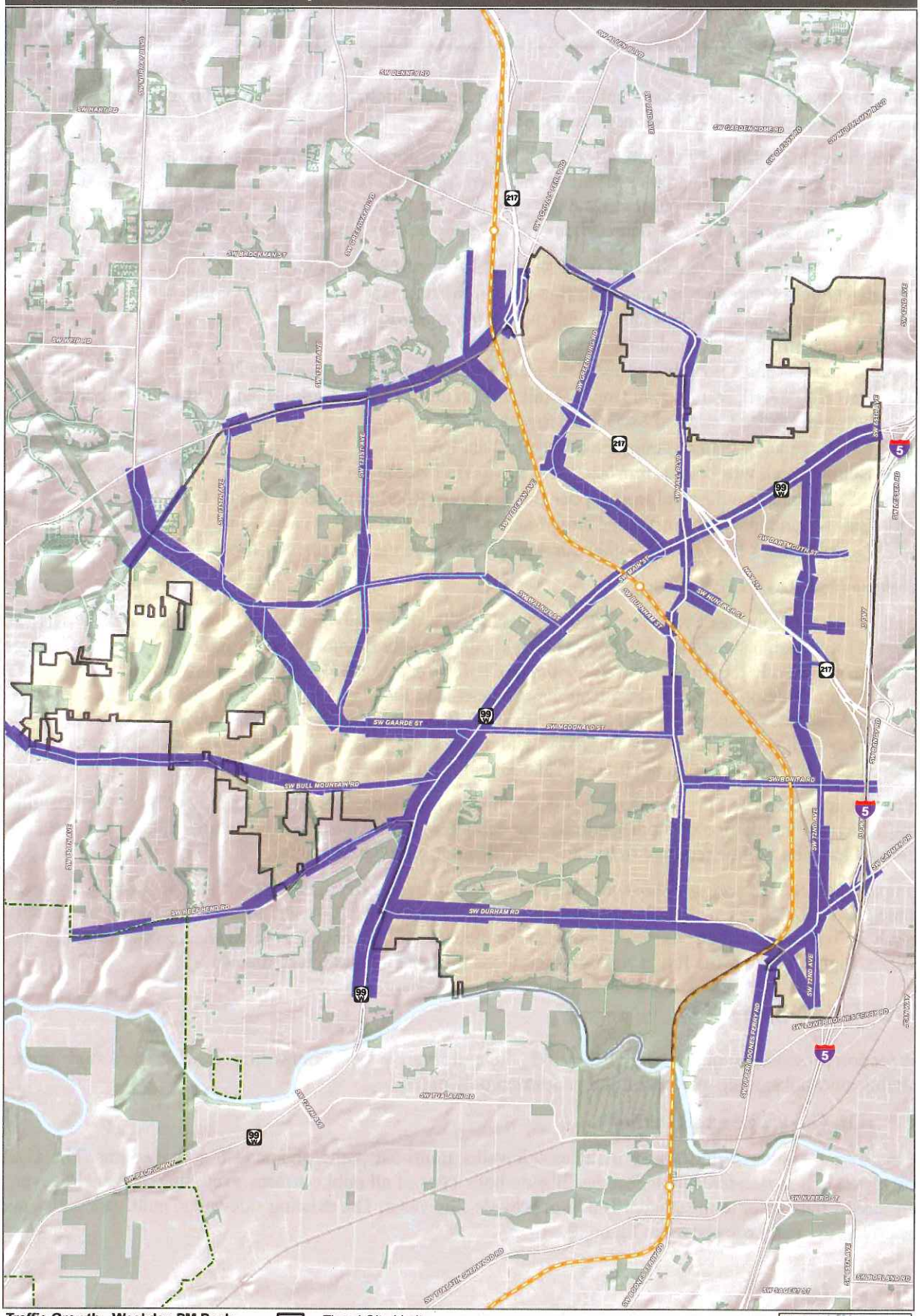
PEDESTRIAN SYSTEM

This section presents a summary of existing and potential future pedestrian facilities in the Tigard study area, including sidewalks, multi-use paths, and pedestrian only paths.

Pedestrian Coverage and Quality

The pedestrian system within Tigard includes sidewalks, multi-use paths, and pedestrian only paths. The Tigard street cross section standards include sidewalks on both sides of all public streets, excluding alleys. However, many streets built prior to the standards do not provide sidewalks. The existing sidewalks, multi-use paths, and pedestrian-only paths are shown in Figure 9.

Fig. 6: City of Tigard - Transportation - Forecast Travel Demand Growth 2005-2035



Traffic Growth - Weekday PM Peak

- Decrease in Growth
- 0 to 500
- 501 - 1000
- 1001- 2500
- Over 2500

- Tigard City Limits
- Commuter Rail
- Railroads
- Streams
- Rivers and Water Bodies
- Parks
- Urban Growth Boundary

0 0.25 0.5 0.75 Miles

Metro Region

10 Miles

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Fig. 7: City of Tigard - Transportation - 2035 Demand-Capacity Ratio - Preferred

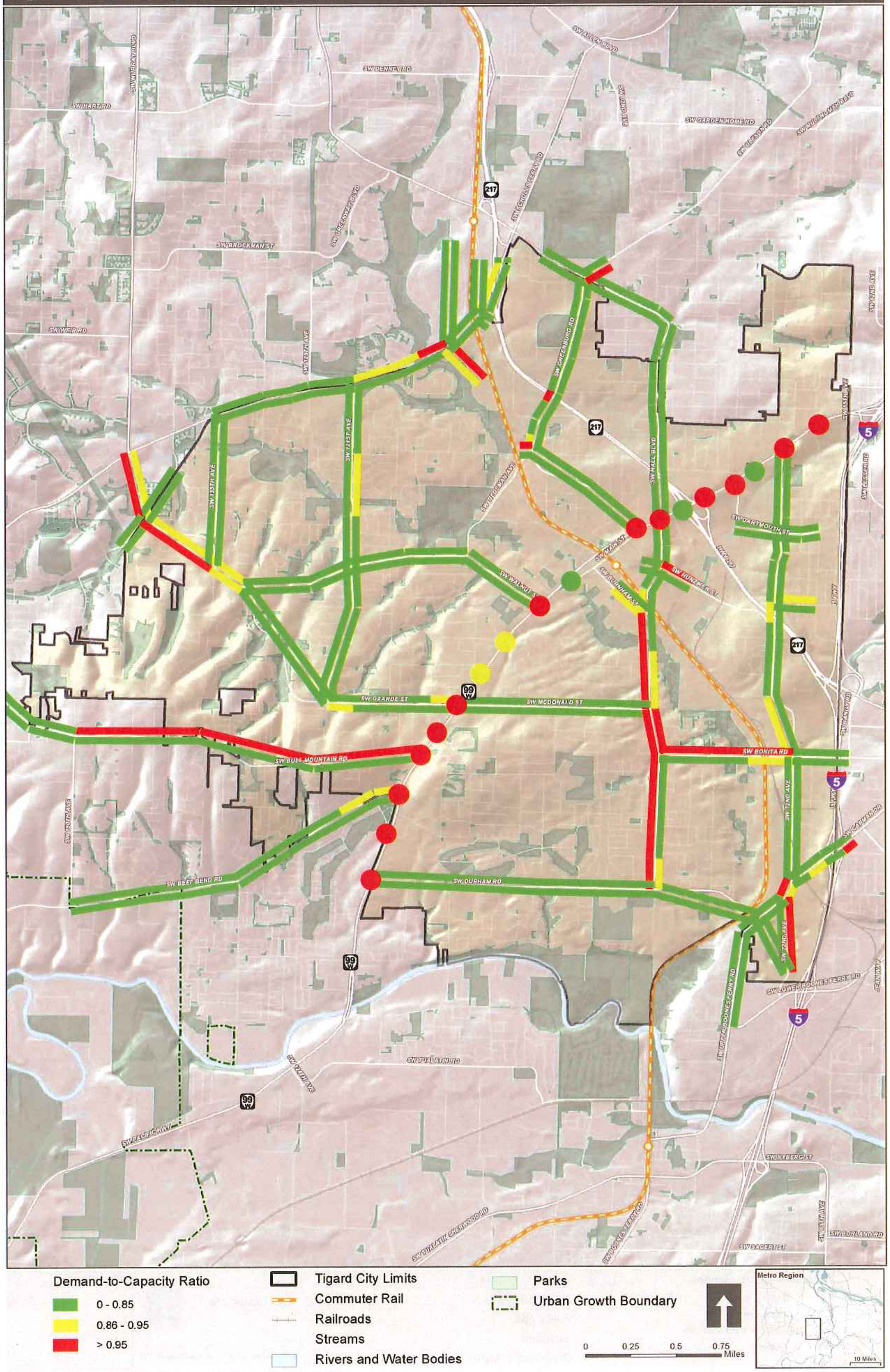

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Fig. 8: City of Tigard - Transportation - Right-of-Way Needs

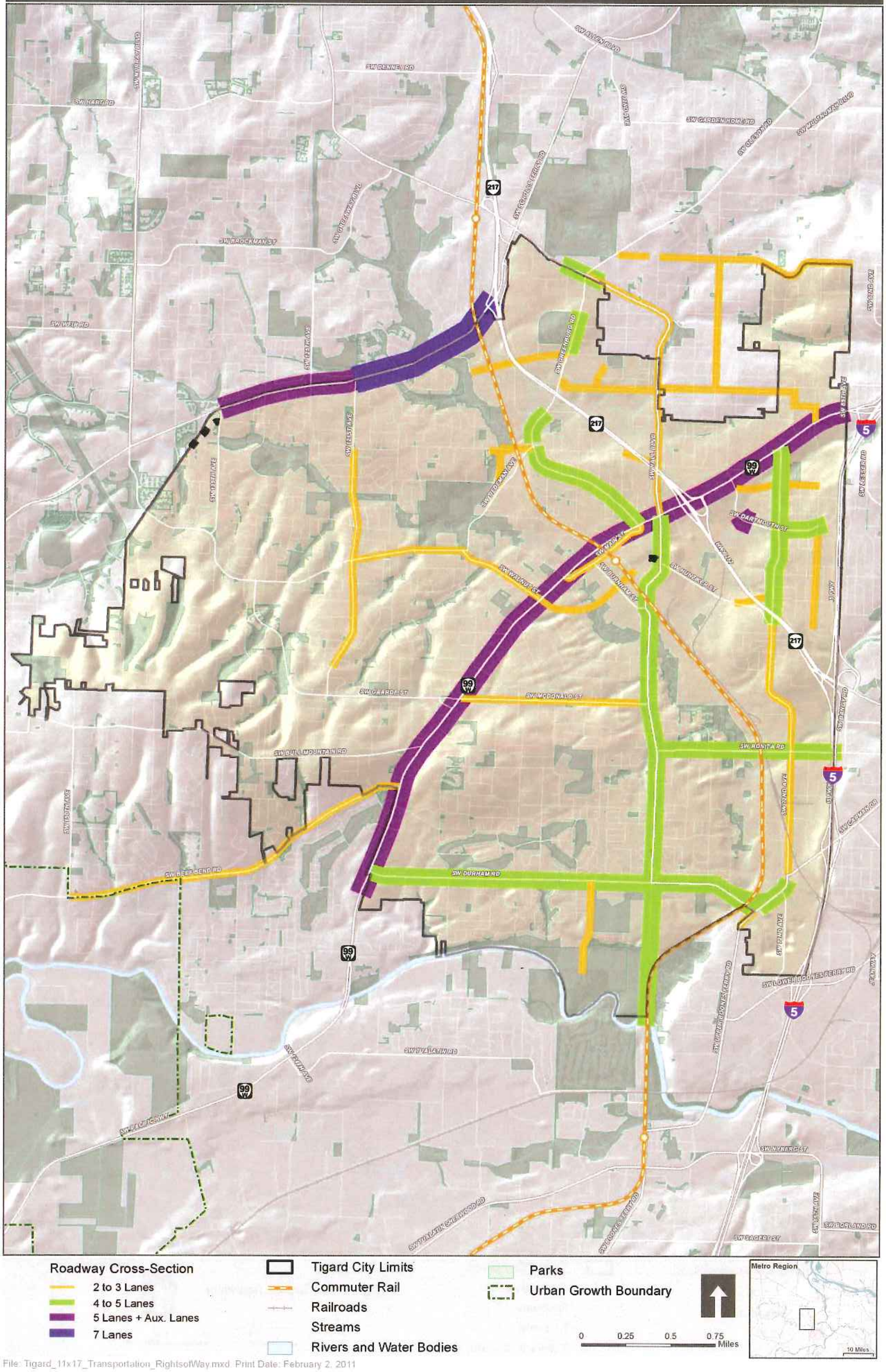

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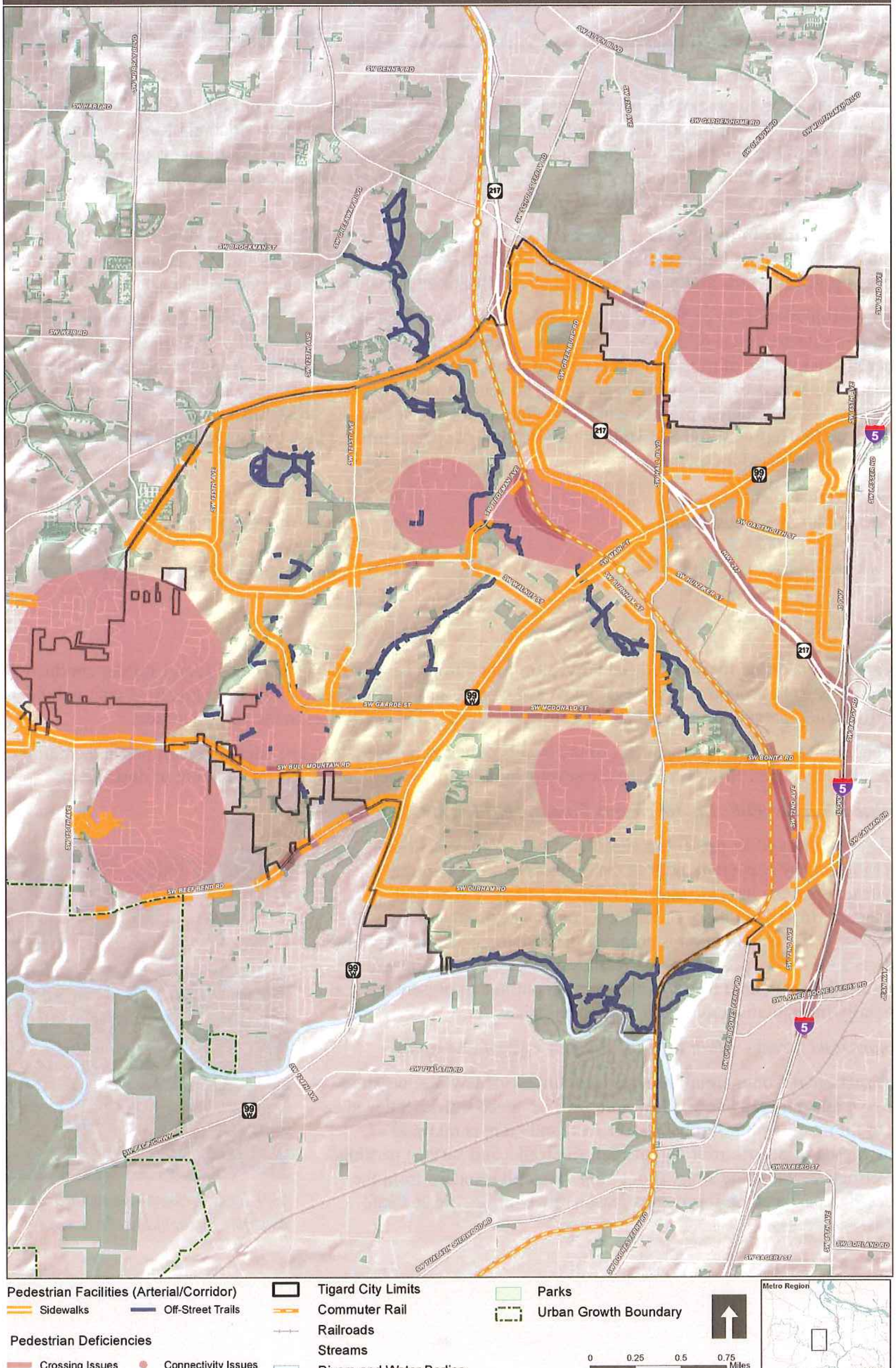
Fig. 9: City of Tigard - Transportation - Pedestrian Facilities and Deficiencies



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As the figure shows, most of the arterials and collectors have sidewalks on one or both sides of the street, but there are several discontinuous sections of sidewalks on McDonald Street, Bull Mountain Road, and others. In addition to those locations that currently lack sidewalks, the condition of sidewalks in many areas does not always offer a positive walking experience. In many locations, sidewalks are located curb tight to higher speed travel lanes and/or have deteriorating pavement quality.

Tigard's off-street trails are generally concentrated along several greenways located within the city, the most notable of these is the Fanno Creek Greenway which traverses the full length of the city. In addition to Fanno Creek, significant trails are located along the Tualatin River and the Pathfinder/Genesis Trail.

In August of 2010, City of Tigard, ODOT and TriMet staff conducted an investigation of the existing sidewalk system in selected areas of the City. The purpose of the investigation was to identify areas in the city that are generally supportive of transit in terms of land use and transportation conditions. Analysis relied primarily on GIS data such as land uses, transit stops, proximity to schools and other pedestrian generators. A minimal level of field work was also conducted, primarily in the vicinity of the Downtown Tigard Transit Center. The study extended across Pacific Highway and SW Hall Boulevard, with a special interest in accessing residential areas. Ten focus areas were identified including:

- Transit Center
- Main Street businesses
- Post Office
- Pharmacy (Rite Aid)
- Fanno Creek Trail
- Tigard Library
- City Hall
- Jim Griffith Skate Park
- Tigard Plaza
- Commercial Park neighborhood
- The Knoll

In partial preparation for detailed field inventory, staff from the City of Tigard, ODOT, and TriMet conducted a preliminary walk-around during a typical weekday in August 2010. The findings from this field visit will be used to refine study parameters as well as specific opportunities and challenges in the current system.

In general, it was observed that most of the streets downtown have adequate pedestrian facilities and conditions are generally favorable. However, there are several significant barriers for access into and out of downtown.

Pacific Highway 99W: Improvements Coming, but Highly Auto Dominant

Pacific Highway 99W presents a significant barrier to pedestrians. Conditions were especially poor at the time of the field visit due to construction at the intersections at Greenburg-Main and at Hall Boulevard. In spite of these conditions, some pedestrian activity was observed. After construction is completed, these intersections will have pedestrian crossing phases on the traffic signals. However, the wide cross sections and high traffic volumes will continue to present a generally inhospitable environment for pedestrians.

99W looking Southwest towards Hwy 217, example gap in sidewalk network

Commercial Street – Main to Hall: Adequate if not Exemplary

This section of Commercial Street has continuous sidewalks, on-street parking, and generally serves low volume, low speed traffic. Sidewalks are of minimum width (probably five feet) and there is minimal landscaping or other buffering between sidewalks and surface parking. Nevertheless, while the street is not built to a high standard from the pedestrian perspective, it provides reasonably comfortable and safe pedestrian access.

Burnham Street & Main Street Improvements: Significant Improvements Pending

Major reconstruction of Burnham Street is nearing completion. Sidewalks have been widened to 12 feet to 18 feet, and pedestrian crossings and curb ramps have been installed. Other major elements that will enhance the pedestrian environment include undergrounding of utilities, pedestrian scale lighting, street furnishings, and landscaping and street furnishings.

Main Street currently has continuous sidewalks and a few designated pedestrian crossing locations. In general, the sidewalks are adequate in width and are mostly uninterrupted. There are a few locations where signage, utilities, or street furnishings partially obstruct the pedestrian path. These conditions are expected to improve significantly with the upcoming Main Street Green Street Retrofit. The project will include redesign and construction of the street and is expected to incorporate landscaping for water treatment, sidewalks, on-street parking, street furnishings, lighting, signage, and street furnishings. Phase 1, which includes the section from the railroad tracks to the southern Pacific Highway 99W intersection, is currently in the early phases of design. Phase 2 is not funded.

Scoffins Street: Significant Sidewalk Gap at Hall Boulevard

Scoffins Street has continuous sidewalks on both sides of the street starting at Main Street, though there are some maintenance issues adjacent to the Rite Aid parking lot. Specifically, some of the vegetation is overgrown and encroaching on the sidewalk. The sidewalks are basically in good condition.

Sidewalks on both sides of the street end at the American Legion building near Ash Avenue. Between this location and SW Hall Boulevard, there is no sidewalk on either side of the road. In this location, the absence of sidewalks is combined with heavy traffic and a sharp turn in the roadway hindering sight distance, to create an unwelcoming pedestrian environment.

Fanno Creek Trail: Good Neighborhood Access

Downtown is adjacent to residential neighborhoods in several directions. The area to the southwest has excellent pedestrian access via the Fanno Creek Trail, which can be used to access Ash Avenue-Burnham Street or Main Street by Max's Brew Pub.

Commercial Street – Main Street to Northwest of 99W: Major Opportunity

There are no sidewalks on this section of Commercial Street and the paved cross section is relatively narrow. It has the potential to provide a very good connection between the residential neighborhood and downtown, with an undercrossing of Pacific Highway 99W. It also connects to an informal path along the Center Street alignment, which provides direct access to Greenburg Road and Hall Boulevard via Tigard Plaza.

Commercial Park Trail/Center Street

On the northwest side of Pacific Highway 99W, an informal pedestrian path runs parallel to the highway between Commercial Street and Center Street. Center Street continues to Greenburg Road and then to Hall Boulevard via the Tigard Plaza shopping center. This can serve as a pedestrian connection into downtown that avoids crossing the highway. However, its informal and largely unimproved nature limits its effectiveness and attractiveness as a pedestrian route.

TriMet Park & Ride Sidewalk Connection

The Transit Center park & ride lot has a very nice sidewalk from Hall Boulevard, with landscaping and natural street furnishings. However, the sidewalk ends in a drive aisle of the parking lot and there is no dedicated pedestrian path connecting to Main Street. Given that the parking lot is generally underutilized, it may be possible to redesign the lot to provide a continuous pedestrian connection, while continuing to serve the current parking demand.

Pedestrian Volumes

Pedestrian counts were taken at key intersections that were studied during the TSP planning process. These counts identified the number of pedestrians present during the morning and evening peak periods. Pedestrian counts at

intersections with more than ten pedestrians counted over a two-hour period of time (either 7-9 a.m. or 4-6 p.m.) are summarized in Figure 3-15 of the TSP Technical Appendix on Existing Conditions. The counts were conducted in spring and summer of 2008. The figure shows several intersections on Highway 99W with more than 40 pedestrians over a two-hour a.m. or p.m. peak period during a weekday. The highest volume of pedestrians was observed at the SW Hall/SW Durham Road intersection near Tigard High School. At this location, there were approximately 150 pedestrians during the two-hour morning peak period.

Additional data related to pedestrian activity is available from a 2009 study of transit rider boardings and alightings for existing transit routes in the Tigard area. This data is illustrated in Figure 14 and shows a high level of pedestrian activity at the Tigard Transit Center, the Washington Square Transit Center and the Tualatin Park-and-Ride facility (volumes range from 601 to 2,550 pedestrians per day). A lower but still significant level of pedestrian activity was observed adjacent to numerous bus stops primarily along Pacific Highway and Hall Boulevard.

Pedestrian Deficiencies

Figure 9 also shows several pedestrian system deficiencies including a lack of connectivity in several areas that have inadequate sidewalks and/or off-street trails for pedestrian. The City of Tigard completed a study, called the Tigard Trail project, which evaluated the off-street trails in the city. The study provides a list of forty-three recommended off-street trail projects within the city. As these projects are completed, they are expected to support the existing pedestrian network and address several of the connectivity deficiencies identified in this report.

The City, ODOT and TriMet-sponsored study discussed above also identified several locations where improvements could be made to the pedestrian system to address general deficiencies. Recommendations focused on the following:

Transit Center Park & Ride Lot

- Reconfigure parking to provide a designated continuous pedestrian connection along the current sidewalk to Main Street.

Formalize the Center Street Connection from Commercial to Hall Boulevard

Several improvements are needed to create a high quality pedestrian along the Center Street alignment. These should generally include some degree of reconstruction as well as signage and landscaping improvements.

- Improve the Commercial Park path between Center Street and Commercial
- Provide sidewalk on Commercial Street between the Commercial Park path to Greenburg Road (lower priority).
- Upgrade the sidewalks between Greenburg Road and 87th Avenue.
- Obtain an agreement with Tigard Plaza to strip a designated pedestrian path along the Center Street alignment between 87th Avenue to Hall Boulevard.

Pedestrian Treatment on Scoffins

Scoffins Street will provide the shortest and most direct path from the new Knolls development to several key destinations in downtown, including the Rite-Aid pharmacy, Post Office, and the transit center. The city has long planned to realign Scoffins Street to align with Hunziker Road. Without funding in place for this ultimate improvement, it may not be fiscally responsible to pursue a permanent sidewalk on Scoffins. However, options for a temporary sidewalk or pedestrian path should be explored.

- Install a temporary pedestrian path along Scoffins Street between Hall Boulevard and Ash Avenue-American Legion building.

Areas along the WES Commuter Rail and along several streets (Gaarde, McDonald, Bull Mountain, sections of Hall) were identified as locations with challenging crossing conditions for pedestrians. These tend to be streets with relatively high traffic volumes, but infrequent signalized intersections or other protected crossing locations.

Future Pedestrian System Improvements

Pedestrian System Designations

The City of Tigard does not currently have an adopted pedestrian plan. Rather, with the adoption of the TSP, a pedestrian network has been identified. Planning for a comprehensive and complete pedestrian system remains to be undertaken.

The 2035 Metro RTP Update includes pedestrian designations that encourage the development of a well-connected high quality pedestrian environment. The guidance in the RTP recognizes the importance of transit facilities for encouraging walking trips on the transit/mixed-use corridors, while multi-use facilities provide pedestrians with dedicated space for travel. Short distance trips are most attractive to pedestrians, and this environment is often found in the Regional and Town Centers in the area. Table 10 summarizes the Metro pedestrian designations in Tigard.

Table 10. Pedestrian Designations from the 2035 RTP Update

Transit/Mixed-Use Corridors	Multi-use Facility with Pedestrian Function	Pedestrian Districts
Pacific Highway (99W)	Fanno Creek	Washington Square Regional Center
Hall Boulevard	Tualatin River	Tigard Downtown Town Center
Scholls Ferry Road	Power lines	King City Town Center
Hunziker Street	Hunziker to Lake Oswego	

Future Pedestrian Network

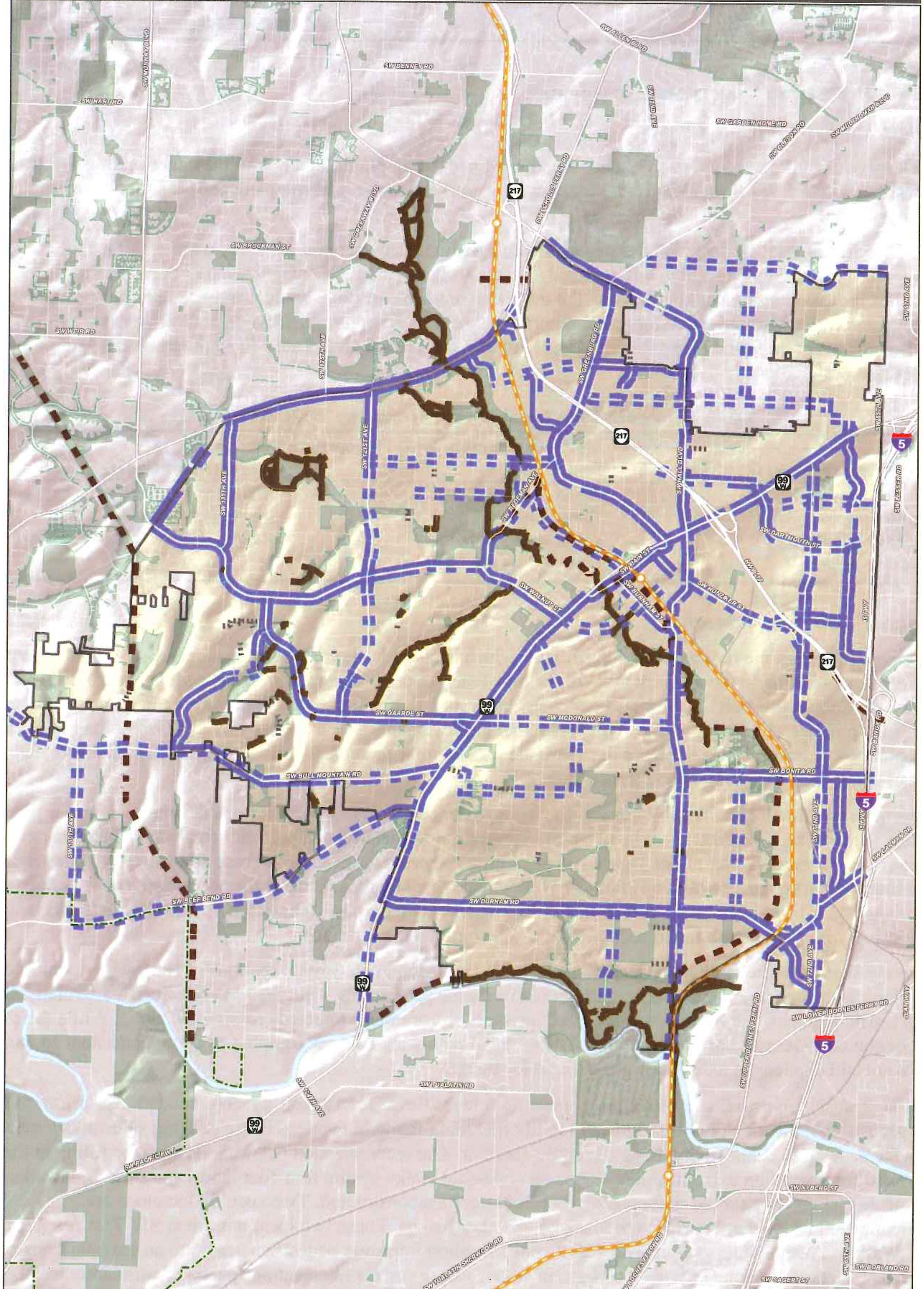
Figure 10 identifies the future pedestrian network which is comprised of the existing sidewalk and multi-use path networks, in addition to the network that will be developed through sidewalk projects, pedestrian crossing projects, "Complete Street" and roadway capacity projects (all of which will include sidewalks), and future multi-use paths projects. According to the TSP, pedestrian improvements should be prioritized based on their ability to complete connections between places that generate pedestrian trips such as schools and housing; housing and transit stops; and, employment and transit stops.

Pedestrian crossing locations allow for walking trips to connect across busy roads or rail lines to continue along pedestrian facilities. In addition to the need for sidewalks along arterial and collector roadways, there are several high-volume roadways that bisect Tigard and need improvements to increase the ease and safety of pedestrian crossings. In particular, the rail corridor near Highway 217 in Tigard is difficult for pedestrians to cross due to infrequent crossings, which may not include proper pedestrian facilities. Access across the railroad tracks is increasingly important with the introduction of WES commuter rail service.

Several streets (Pacific Highway, Gaarde, McDonald, Bull Mountain, Bonita, sections of Hall) were identified as locations with challenging roadway crossing conditions for pedestrians. These tend to be streets with relatively high traffic volumes, but infrequent signalized intersections or other protected crossing locations. While the state of Oregon considers all unsignalized intersections legal crosswalks, driver compliance is not consistent so that there are still challenges for pedestrians at these locations.

The *Tigard 99W Improvement and Management Plan* identifies several specific recommendations for improving the pedestrian network along this highway facility including filling in the gaps in the existing sidewalks system to provide pedestrian connectivity along the entire corridor. The recommended sidewalk design (for filling in the gaps and for upgrading existing sidewalks) is an eight-foot walkway and four-foot landscape strip. Sidewalks segments that meet or exceed these standards would not be reconstructed. Two specific locations are recommended for new pedestrian activated signalized crossings. These two locations are at SW 71st Avenue and SW Watkins Avenue intersection. The 71st Avenue location improves pedestrian access to an existing transit stop. SW Watkins Avenue improves pedestrian access where current intersection spacing significantly exceeds

Fig. 10: City of Tigard - Transportation - Planned Pedestrian Facilities



Existing Facilities
- Sidewalk
- Multi-Use Path

Future Facilities
- Sidewalk
- Multi-Use Path
- Neighborhood Path

Tigard City Limits
Commuter Rail
Railroads
Streams
Rivers and Water Bodies

Parks
Urban Growth Boundary

0 0.25 0.5 0.75 Miles

Metro Region
10 Miles

File: Tigard_11x17_Transportation_PlannedPed.mxd. Print Date: February 2, 2011.

accepted standards for convenient pedestrian crossing. Implementation of these (as well as design components) would need to be determined at a later time when an engineering study is completed to determine if the locations meet warrants for pedestrian crossings as well as what type of crossing treatment is most appropriate for the safest design possible. Final design of the new pedestrian crossings will be subject to ODOT approval. Meeting signal warrants and spacing requirements may limit or preclude where additional signalized intersections could be implemented.

BICYCLE SYSTEM

This section presents a summary of existing and potential future bicycle facilities in the Tigard study area.

Inventory of Facilities

Bicycle use in Tigard is generally used for recreational, school and commuting purposes. Bicycles are permitted on all roadways in Tigard and streets with lower traffic volumes. Figure 11 shows existing bike lanes along collector and arterial streets and off-street multi-use paths that are shared with pedestrians. For reference, the locations of a number of potential bicycle attractors are also shown, including schools, parks, commercial areas, the library, and the hospital. It can be seen from Figure 11 that where bicycle lanes are provided, they are generally provided along both sides of the street. The information presented in Figure 10 is augmented by a copy of the City's Bike Tigard map, a copy of which is included in Appendix B. This map shows existing bicycle lanes and shared use facilities, multi-use trails, major bicycling destinations, and the location of traffic signal to aid with route planning. The map also identifies locations where bicyclists should exercise caution, as well as locations with difficult connectivity.

The provision of bicycle parking is required for most new development in the City. Its purpose is to provide a secure (and sometimes covered) space for bicycle storage at a variety of destinations. The City of Tigard's Development Code (Section 18.765.050) identifies design standards for bicycle parking facilities. Section 18.765.070 addresses minimum and maximum off-street parking requirements and includes an extensive table correlates these requirements with specific land uses. Bicycle parking requirements are included in the table..

Bicycle Volumes

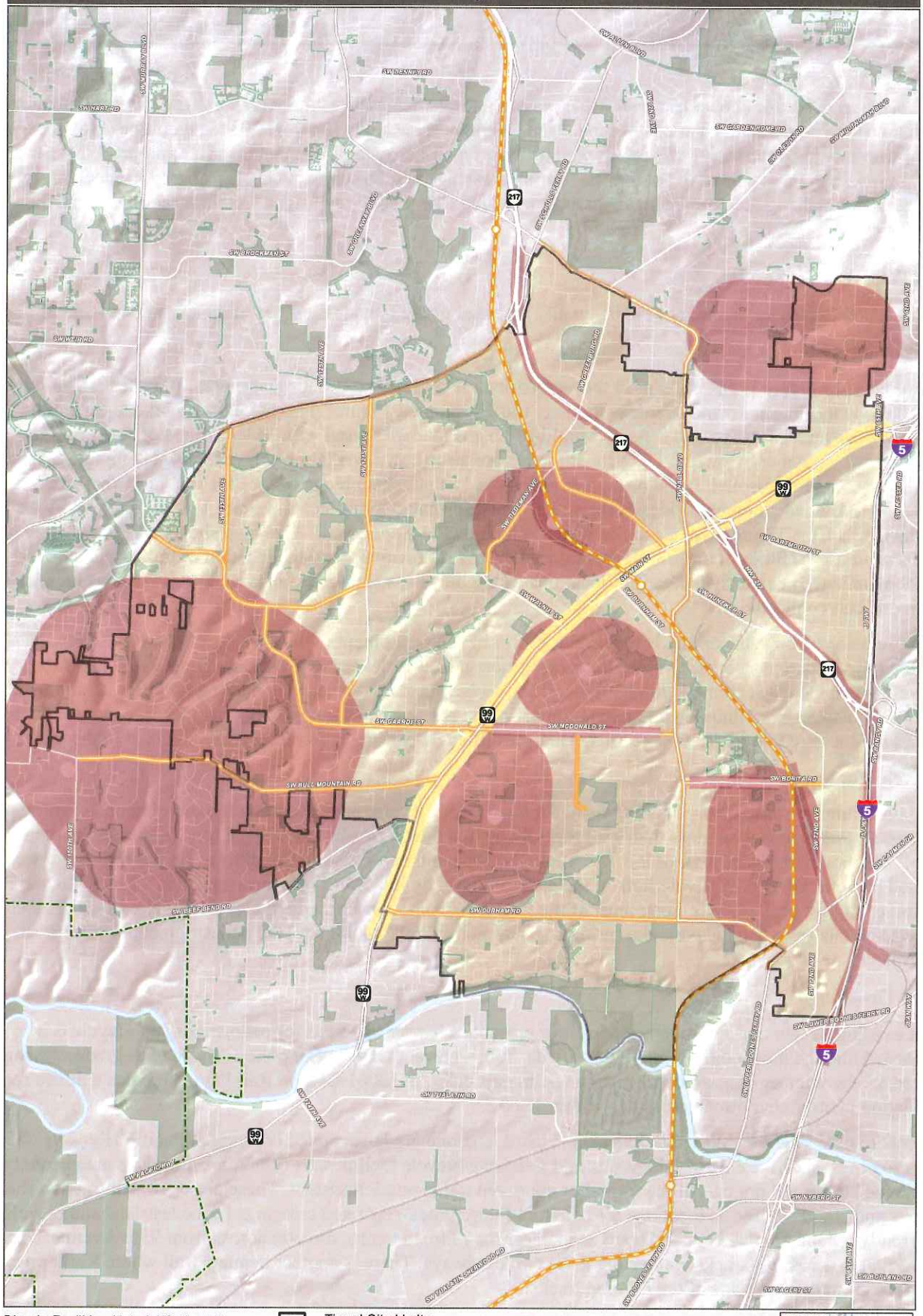
Bicycle counts at study intersections indicated a number of bicycles present during the morning and evening peak periods. Intersections with more than ten bicycles counted over a two-hour period of time (either 7-9 a.m. or 4-6 p.m.) are shown in Figure 3-16 of the TSP Technical Appendix on Existing Conditions. As the figure shows, peak period bicycle traffic is relatively light at the most of the study intersections. However, 26 to 40 bicycles were observed during peak periods along most of the Hall Boulevard corridor, where bicycle travel was highest. The bicycle counts were conducted in the spring and summer of 2008, along with the pedestrian counts discussed above.

Rail Crossings

The existing freight and commuter rail corridor presents a barrier to access for pedestrians and bicyclists in Tigard. Although new multi-use pathways are desirable, current ODOT Rail policy related to at-grade crossings is to reduce the number of at-grade rail crossings. In particular, the 2001 Oregon Rail Plan expresses a desire for a reduction in at-grade railroad crossings within Tigard.

There are nine at-grade railroad crossings in Tigard, and one grade-separated crossing at Pacific Highway. Of the ten crossings, six have existing sidewalks and five have bicycle facilities. Several track crossings are currently "demand" trails and not part of the formal or approved transportation system. These are worn paths across the tracks and could be used as locations for potential future grade-separated crossings for pedestrians and bicyclists. Currently, Grant Avenue ends at Tigard Street near the railroad tracks, directly across from 95th Avenue. There is a worn path across the tracks connecting these two roadways. There is another demand trail where Katherine Street ends at the west side of the railroad tracks.

Fig. 11: City of Tigard - Transportation - Bicycle Facilities and Deficiencies



Bicycle Facilities (Arterial/Collector)
- Sidewalks
- Off-Street Trails

Bicycle Deficiencies
- Crossing Issues
- Connectivity Issues
- Uncomfortable Facility

- Tigard City Limits
- Commuter Rail
- Railroads
- Streams
- Rivers and Water Bodies

- Parks
- Urban Growth Boundary

0 0.25 0.5 0.75 Miles

Metro Region

10 Miles

File: Tigard_11x17_Transportation_BikeDeficits.mxd. Print Date: February 2, 2011.

In addition to crossings with existing demand, additional connections across the railroad tracks to the Tigard Transit Center would benefit pedestrians and bicyclists accessing transit lines. Currently, there are two connections on either side of the transit center, at Main Street and Hall Boulevard, but these crossings are nearly 1,500 feet apart.

Any potential crossings needed for future multi-use pathways, for instance connecting the Fanno Creek Trail with regional destinations such as the Tigard Triangle and the Washington Square Regional Center will need to be coordinated with ODOT Rail to ensure consistency with their policies.

Bicycling Deficiencies

While the existing bicycle facilities serving Tigard create a fairly extensive network, in many instances there are short gaps or other conditions that reduce the quality and/or safety of bicycling. For example, there are short gaps in the bicycle lanes on Pacific Highway near 72nd Avenue and on sections of Walnut Street and Bonita Road. Further, the existence of designated bicycle lanes does not always indicate a high quality bicycle route. High motor vehicle volumes and travel speeds can contribute to an unsafe environment for riding. Other issues may arise from inadequate or inconsistent lane widths, poor pavement conditions, or debris in the bike lanes.

Future Bicycle System Improvements

Bicycle System Designations

Metro has made several bicycle designations as part of the Regional Bicycle System in the 2035 RTP. The designations encourage the development of a regional bikeway system to provide both mobility and accessibility for cyclists. Arterial facilities often provide the most direct route between destinations, and the regional corridors for bikes identify the arterials suited for bicycle travel. Lower volume connector streets provide greater access for bicyclists, while off-street facilities allow for cyclists to ride separate from roadway vehicles. Table 11 identifies the designations for streets in Tigard.

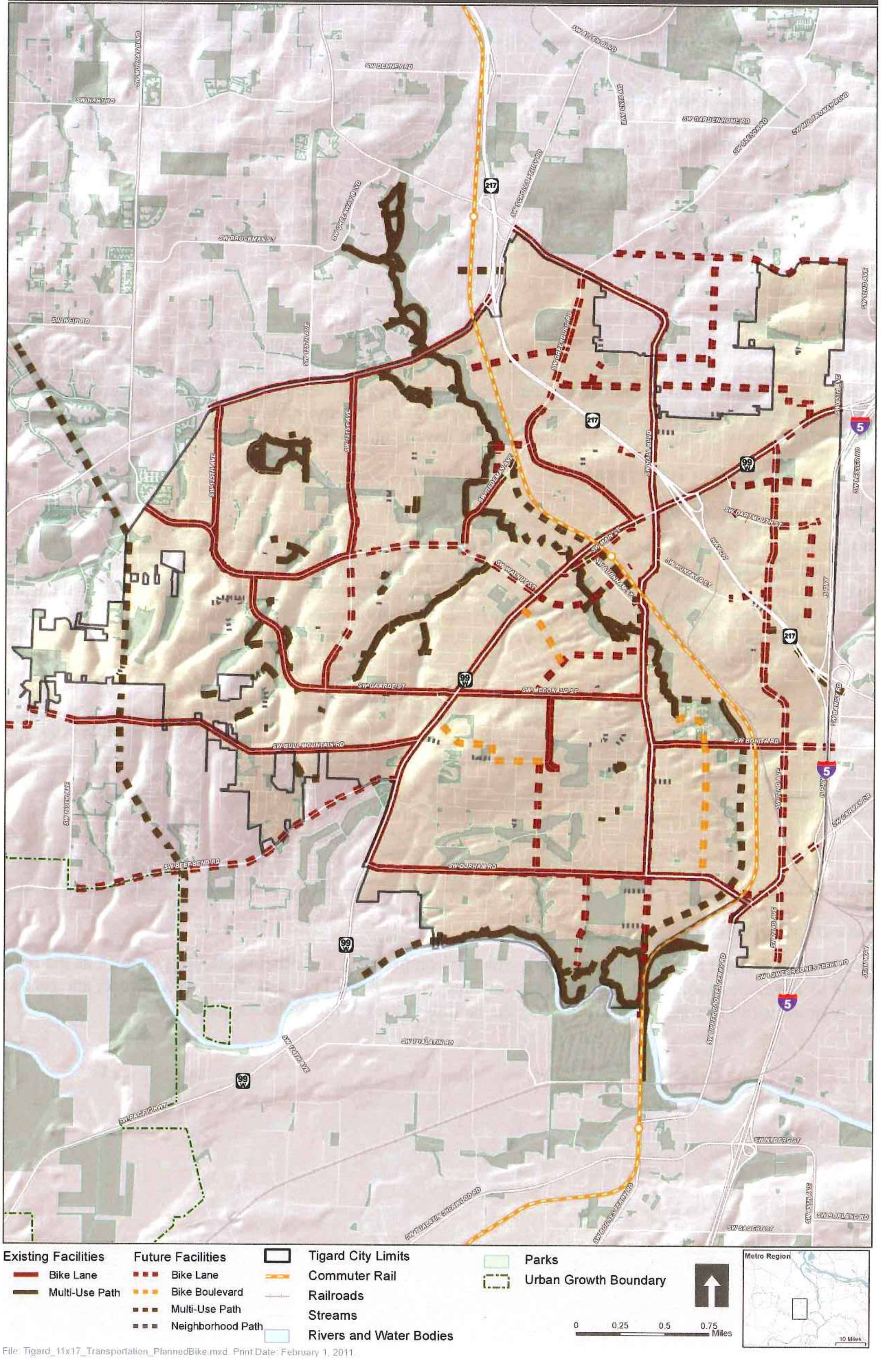
Table 11. Bicycle Designations from the 2035 RTP

Regional Access	Regional Corridor(on-street)	Community Connector	Regional Corridor Off-Street
Hall Boulevard to Greenberg Road to Main Street to Hunziker Street	Walnut Street Scholls Ferry Road Hall Boulevard Pacific Highway (99W) Hall-Durham-Boones	72nd Avenue Bonita Road-McDonald Street Carman Street– Durham Road	Fanno Creek Tualatin River Power lines Hunziker Street to Lake Oswego through I-5/Highway 217

Future Bicycle Network

Figure 12 identifies the future bicycle network which is comprised of the existing facilities, as well as the network that will be developed through bicycle lane projects, bicycle boulevard projects, "Complete Street" and roadway capacity projects (all of which will include bicycle facilities), and future multi-use paths projects.

Fig. 12: City of Tigard - Transportation - Planned Bicycle Facilities



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TRANSIT

This section describes existing and planned/potential future transit services and facilities within the City of Tigard study area.

Inventory of Facilities and Services

Fixed route service is provided in the City of Tigard by TriMet. Figure 13 shows the routes passing through Tigard. There are two transit centers one frequent bus route, seven standard bus routes and four rush-hour routes, two of which are designated "express" routes. Rush-hour routes have a limited number of stops, as compared to other bus service. For example, coming from Portland during the evening rush hour, Route 94 Express stops only at the Tigard Cinemas and Greenburg Road before it begins making regular stops at Walnut/Pacific Highway. Also coming from Portland during the evening rush hour, Route 92 Express does not stop before reaching the Progress Park & Ride station, where it begins making regular stops. As shown in Table 12 TriMet bus routes generally operate on three different schedules.

Table 12. TriMet Service and Average Headways

		Weekday		Weekend	
Service Type	Tigard Route	Peak Periods	Off-Peak Periods	Peak Periods	Off-Peak Periods
Frequent Bus Service	12	15 minutes (7 a.m. to 10 p.m.)	30 minutes	15 minutes (9 a.m. to 9 p.m.)	60 minutes
Standard Bus Service	43, 45, 56, 62, 76, 78	30 minutes (6 a.m. to 6 p.m.)	60 minutes	30 minutes (9 a.m. to 6 p.m.)	60 minutes
Rush Hour Bus Service	38, 64, 92, 94	30 minutes (6 a.m. to 8 a.m.) Inbound to Portland	No Service	No Service	
		30 minutes (4 p.m. to 6 p.m.) Outbound to Tigard	No Service	No Service	
Commuter Rail Service	WES	30 minutes (5 a.m. to 10 a.m. & 3 p.m. to 8 p.m.)		No Service	

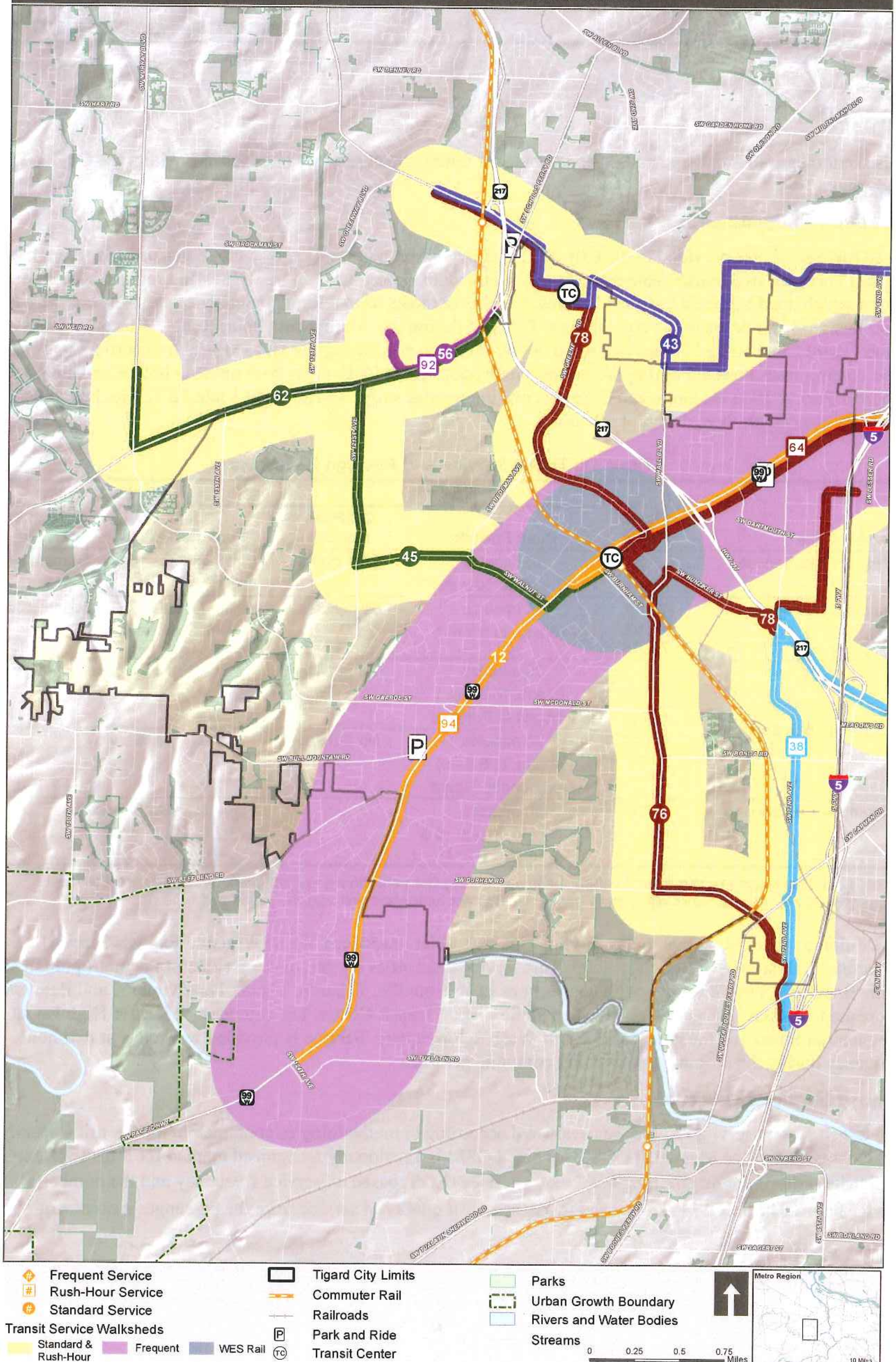
Notes: Peak headways are the most frequent headway during the peak hours and off-peak headways are the least frequent headway during hours other than peak times. Exact headways will vary by route and time.

In addition to the existing bus routes serving Tigard, TriMet introduced WES (Westside Express Service) Commuter Rail service in February 2009. This service links cities on the southwest side of the metropolitan area to the Beaverton Transit Center, with connections in Wilsonville, Tualatin, Tigard, Hall/Nimbus, and Beaverton. There are two stops in Tigard – one located at the Tigard Transit Center, just southeast of Pacific Highway at Commercial Street and the other just west of Washington Square. Service is provided weekdays at half hour frequency during the morning and evening commute periods.

Transit Service Evaluation

The transit system serving Tigard was evaluated according to methodologies contained in the Transit Capacity and Quality of Service Manual (TCQSM). The TCQSM is a nationally recognized manual for transit systems and establishes criteria for determining level - of - service (LOS) based on service frequency and the number of service hours. The TCQSM can be used to assess transit quality of service from the passenger's point - of - view,

Fig. 13: City of Tigard - Transportation - 2009 Transit Routes



File: Tigard_11x17_Transportation_TransitRoutes.mxd. Print Date: February 2, 2011.

based on several factors relating to the availability of transit service and the comfort and convenience of transit service. These factors, such as service frequency, are graded on an "A" to "F" LOS scale, similar to the scale for vehicles. Many of the quality of service measures are best applied on an origin - destination basis, as more than one transit route may serve a particular pair of origins and destinations, and some routes may only operate during peak hours only, but provide good service at those times. Tables 13 through 16 provide levels of service related to transit availability in Tigard.

Service Frequency

Tables 13 and 14 provide service frequency LOS for to or from the Tigard Transit Center and Washington Square—the portion of the City with the best transit service—to major destinations in the Portland area. The level - of - service measures correspond to average headways between bus arrivals. LOS "A" indicates average headways of less than ten minutes and LOS "F" indicates that headways are at intervals greater than one hour.

Table 13. Service Frequency LOS from Tigard Transit Center

Destination	Routes	Weekday Ridership in Tigard	Weekday Peak	Weekday Midday Off-Peak	Weekday Evening	Weekend Peak	Weekend Off-Peak
Downtown Portland *	12, 45, 94	4,601	A	C	D	B	D
Washington Square	45, 76, 78	5,916	C	D	E	E	E
Beaverton TC *	76, 78	5,598	D	D	E	D	E
Lake Oswego TC	70	2,610	D	D	E	E	E
Sherwood *	12, 94	4,283	A	C	D	B	D
Tualatin	76	2,988	D	D	E	D	E
Marquam Hill	64	62	C	F **	F **	F **	F **
Gresham	12	3,762	B	C	D	B	D

* Multiple bus routes ** No service during these time periods.

Table 14. Service Frequency LOS from Washington Square

Destination	Routes	Weekday Ridership in Tigard	Weekday Peak	Weekday Midday Off-Peak	Weekday Evening	Weekend Peak	Weekend Off-Peak
Downtown Portland *	43, 45, 56	1,130	B	D	E	E	E
Tigard TC *	43, 45, 79	3,191	C	D	E	E	E
Beaverton TC *	76, 78	5,590	D	D	E	E	E
Lake Oswego TC	78	2,610	D	D	E	E	E
Sunset TC	62	1,394	C	D	E	D	E
Tualatin	76	2,900	D	D	E	D	E

* Multiple bus routes

As the tables show, in terms of service frequency, service is typically better during the weekday peak periods as compared to other periods. LOS ranges from "A" to "D" during weekday peak periods and from "D" to "E" during most of the other periods.

For destinations served by frequent service buses (Route 12), including downtown Portland, Sherwood and Gresham, LOS "A" and "B" are available during weekday and weekend peak periods, and LOS is acceptable throughout the rest of the time periods. Services are considerably better than destinations covered only by standard and rush□hour service buses.

Hours of Service

Tables 15 and 16 provide hours of service LOS from Tigard Transit Center and Washington Square to the same destinations, measuring the number of hours during the day when service is available to a particular destination. The hours-of-service evaluation is relevant only for those hours when service is provided at least hourly. In the analysis, LOS "A" indicates that service is provided during 19 or more hours per day; LOS "F" indicates that service is provided during three or fewer hours of the day.

Table -15. Hours-of-Service LOS from Tigard Transit Center

Destination	Routes	Weekday Ridership in Tigard	Weekday	Saturday	Sunday
Downtown Portland *	12, 45, 94	4,601	A	A	A
Washington Square *	45, 76, 78	5,916	B	B	C
Beaverton TC *	76, 78	5,598	B	B	C
Lake Oswego TC	78	2,610	B	B	B
Sherwood *	12, 94	4,283	B	B	B
Tualatin	76	2,900	B	C	E
Marquam Hill	64	62	F	F	F
Gresham	12	3,762	B	C	C

* Multiple bus routes

As Table 15 shows, based on hours of service, most of the origin/destination pairs operate at LOS "A", "B", or "C" during most of the study periods. The main exception is Marquam Hill which is only served by rush-hour service. Table 16 shows that the Washington Square transit facility operates with LOS "B" or "C" for all of the routes shown, with the exception of Sunday service to Tualatin.

Table 16. Hours-of-Service LOS from Washington Square

Destination	Routes	Weekday Ridership in Tigard	Weekday	Saturday	Sunday
Downtown Portland *	43, 45, 56	1,130	B	B	C
Tigard TC *	45, 76, 78	3,191	B	B	C
Beaverton TC *	76, 78	5,598	B	B	C
Lake Oswego TC	78	2,610	B	B	C
Sunset TC	62	1,394	B	C	C
Tualatin	76	2,900	C	C	E

* Multiple bus routes

Transit Service Coverage

Figure 13 shows the "service area" for each transit route, which include areas within one-quarter mile from regular or peak hour service, and one-half mile from frequent service routes. The figure shows that while most of the routes serving Tigard operate with relatively high levels of service, there remain significant portions of the City that are not served, including large residential neighborhoods. Major corridors that are not served by regular transit routes include the Gaarde/McDonald/Bonita Road corridor; Durham Road service is provided only east of Hall Boulevard; and Walnut Street is served only between Pacific Highway and Scholls Ferry Road. Also, there are no routes serving Bull Mountain Road or Beef Bend Road.

Ridership and Productivity Ratings

TriMet maintains productivity measures for bus lines in order t monitor the effectiveness of transit service and evaluate potential investments. Key indicators include *boarding rides per vehicle hour* (br/hr) (e.g., one boarding ride per vehicle hour means that there was one person on the bus for one hour of service). For the system in 2005,

the average boarding rides per vehicle hour is 32 br/hr, with the highest performance measure at 54 br/hr (Route 73 Killingsworth/82nd Avenue). TriMet considers the minimum threshold for new bus service to be 15 br/hr, and any existing service that drops below 15 br/hr is considered a low performing line for the agency.

A summary of 2008 average transit ridership for each route in Tigard is presented in Table 17. The table indicates that there were approximately 12,650 daily transit riders in Tigard in 2008, which reflects a 34 percent increase from similar data collected in 1999. As the table shows, two routes in Tigard operate below the 15 br/hr threshold. Routes 43 and 38 operate at 11 br/hr and 14 br/hr, respectively. As such, these would be considered low performing routes.

Table 17. 2008 Weekday Transit Ridership Summary

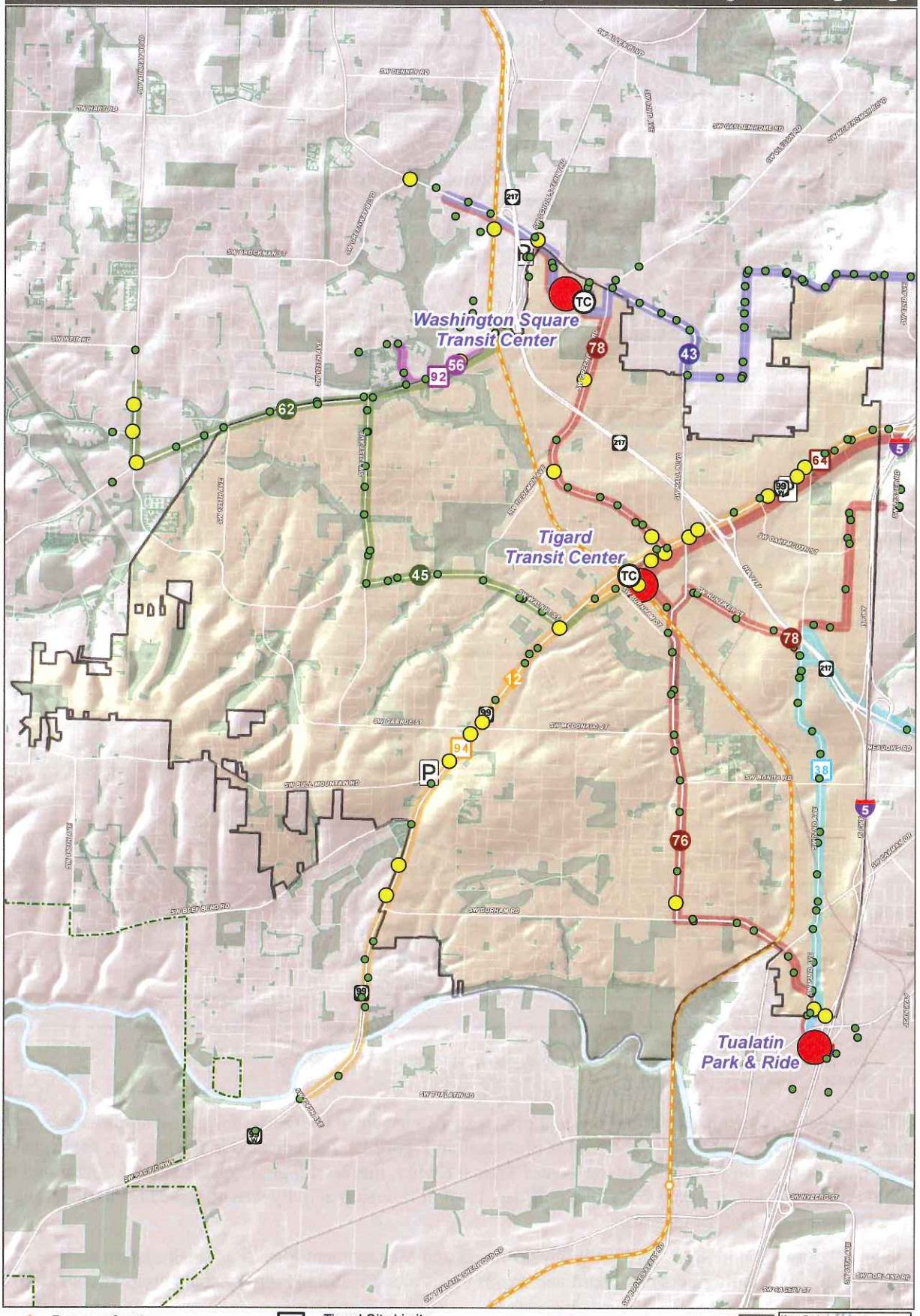
Route	Br/Hr	Direction	Ons	Offs	Total
17 – Barbur	33	Northbound	1,287	627	1,848
		Southbound	594	1,254	1,914
38 – Boones Ferry	14	Northbound	5	25	30
		Southbound	18	11	29
43 – Taylors Ferry	11	Westbound	34	103	137
		Eastbound	95	31	126
45 – Garden Home	16	Westbound	28	135	163
		Eastbound	123	32	155
56 – Scholls Ferry	28	Northbound	7	272	279
		Southbound	261	9	270
62 – Murray Blvd	27	Westbound	132	548	680
		Eastbound	549	165	714
64 – Marquam/Tigard	25	Northbound	1	19	20
		Southbound	41	1	42
76 – Tualatin/Tigard	38	Northbound	718	1,124	1,842
		Southbound	635	511	1,146
78 – Beaverton/Lake Oswego	32	Northbound	563	1,142	1,705
		Southbound	550	355	905
92 – South Beaverton Express	19	Westbound	4	57	61
		Eastbound	60	3	63
94 – Pacific Highway Express	23	Westbound	28	245	273
		Eastbound	228	20	248
TOTAL			**5,961**	**6,689**	**12,650**

Note: Br/Hr means boarding rides per vehicle hour
Ons and Offs correspond to daily boardings and alightings, respectively
Source: TriMet passenger counts

Additional weekly ridership data (total ons and offs) was also provided by TriMet for transit stops/centers in Tigard. This data was collected in 2009 and is illustrated in Figure 14. As indicated in the graphic, the highest level of passenger activity occurred at the Tigard Transit Center, the Washington Square Transit Center and the Tualatin Park-and-Ride. A lower, but still significant level of ridership activity was observed primarily along Pacific Highway and Hall Boulevard.

Based on data provided in the Tigard 99W Improvement and Management Plan, the transit system serves approximately 6,000 daily riders that board and depart buses along Pacific Highway study area. Transit stops are

Fig. 14: City of Tigard - Transportation - 2009 Daily Transit Boardings and Alightings



Frequent Service
Rush-Hour Service
Standard Service

Daily Boardings and Alightings
0 - 100
101 - 600
601 - 2550

Tigard City Limits
Commuter Rail
Railroads
Park and Ride
Transit Center

Parks
Urban Growth Boundary
Rivers and Water Bodies
Streams

0 0.25 0.5 0.75 Miles

Metro Region

File: Tigard_11x17_Transportation_TransitOnOffs.mxd. Print Date: March 16, 2011

on average 980 feet apart and are typically located at or near signalized crossings. However, there are some stop locations at unsignalized intersections requiring pedestrians to cross Hwy 99W to access the stops. Filling in gaps in the sidewalk network, upgrading existing sidewalks to a consistent design standard, and improving pedestrian crossing were all identified as appropriate improvements to enhance multi-modal connectivity along Pacific Highway.

Transportation Demand Management

Transportation Demand Management (TDM) measures include any method intended to shift travel demand from single occupant vehicles to non - auto modes or carpooling, or travel at less congested times of the day. Some common examples of TDM strategies include programs such as carpool matching assistance or flexible work shifts; parking management strategies; direct financial incentives such as transit subsidies; or facility or service improvements, such as bicycle lockers or increased bus service.

Some of the most effective TDM strategies are best implemented by employers and are aimed at encouraging non - SOV commuting. Strategies include preferential carpool parking, subsidized transit passes, and flexible work schedules. Cities and other public agencies can play a critical role in support of TDM through provision of facilities and services, as well as development policies that encourage TDM.

The City of Tigard does not have a dedicated TDM program; however the Westside Transportation Alliance (WTA) is a Transportation Management Association (TMA) serving Washington County. The WTA assists employers in developing, implementing, and monitoring programs to reduce commute trips by single occupant vehicle. The City of Tigard is a member of the WTA, as are most neighboring jurisdictions and many private employers. While the emphasis at WTA is to help employers create TDM programs, the WTA web site provides an "information hub" that individuals can use to find out about a myriad of travel options, including transit service, park - and - ride lots, bicycling, carpool matching, and other services.

The Metro 2035 RTP includes TDM strategies including parking management, providing more bicycle facilities, and supporting TMAs. The TDM projects in the Metro Transportation System Management and Operations (TSMO) plan within Tigard include the following:

- Individualized marketing in the Tigard Town Center (Downtown) and adjacent neighborhoods to encourage travel options through delivery of localized information and services;
- Support of public - private partnerships Transportation Management Associations (TMAs) in regional centers and town centers to help employees and/or residents increase use of travel options;
- Parking management at the Washington Square Regional Center and in Downtown
- Bike sharing at transit - oriented developments, large employers, colleges, hotels, and significant transit stops in the Beaverton to Tigard Corridor

The complete list of TSMO projects for the Regional Mobility Corridors in Tigard are provided in Appendix D of the City's TSP.

Future Transit Service

Transit service is an important part of a balanced transportation system, providing an alternative to private automobile travel for distances too far to walk or bike. Supporting transit as a preferred travel options for the Tigard community requires more than direct investment in transit service.

Land use, connectivity, and streetscape features have a significant influence on the cost effectiveness of transit service and will help Tigard get more out of its available transit investments. For this reason planning for land uses that are transit supportive is necessary, in addition to providing appropriate facilities and connections to transit.

Regional Rail Transit Service

As part of the 2035 RTP update, Metro identified the Southwest Corridor as the next priority for potential High Capacity Transit (HCT) service, along with expanded service hours and frequency on WES commuter rail.

The City of Tigard supports the Southwest Corridor HCT priority and increased service on the existing WES commuter rail. A local contribution to planning work for the Southwest Corridor HCT service is included in the financially constrained project list with an estimated cost of $5,000,000. A major focus of the preliminary planning will address land uses and pedestrian/bicycle connectivity to support transit investments.

Tigard Transit Connector

As development revives and accelerates in Downtown and in the Tigard Triangle, and in connection with the upcoming Southwest Corridor HCT service, improved transit connectivity will be needed. One idea that was identified and briefly discussed in the TSP was to develop a transit connector route that could link residential neighborhoods with the Tigard Triangle, Downtown, and/or Washington Square. The purpose of this route would be to accommodate local access and connections to regional transit. The service should have schedules coordinated with other transit service (e.g. WES and TriMet bus service) to and from Tigard.

Table 18 shows several potential strategies that were identified in the TSP for improving transit service in Tigard. None of these actions was recommended for implementation. Rather, they were identified as possible options for future study and development. The table identifies which entities would be in a Primary role (identified with a "P") and which would be in a Support role (identified with an "S"). As the major transit provider in the region, TriMet would be the Primary implementer of most of the service enhancements. In most cases, the City of Tigard is in a Support role for direct transit enhancements and a Primary role for transit supportive infrastructure.

Table 18. Transit Strategies and Typical Implementing Roles

Improvement	City	TriMet	Beaverton	Washington County	Metro	ODOT
Increase WES frequencies and days of service	S	P	S	S	S	S
Support high capacity transit (HCT) service along/parallel to Pacific Highway	S	P		S	S	S
Provide a new Tigard Connector service	P	S	S			
Improve Transit stop amenities	S	P			S	
Create a bike hub at the Downtown transit center	P	S				

P: Primary role;
S: Secondary/Support role

The main elements of any future transit plan serving Tigard would likely include higher frequencies on the existing Westside Express Service (WES), Southwest Corridor HCT service on Pacific Highway, more transit stop amenities, a bike hub at the Tigard Transit Center, and a connector transit service. These direct service amenities are intended to be developed in conjunction with land use and pedestrian access improvements to support transit use.

RAIL

Inventory of Facilities and Services

Railroad tracks traverse Tigard from its northern boundary to the southeast where the tracks cross the Tualatin River into the City of Tualatin and continue further south (paralleling I-5 to just north of Salem). Another set of tracks, just south of Bonita Road, turns east to Lake Oswego/Milwaukie and Southeast Portland. North of Tigard, the tracks go on into Beaverton and Hillsboro. They are both owned by Portland & Western (P&W), a sister company of Willamette & Pacific (W&P) Railroad.

TriMet introduced WES (Westside Express Service) Commuter Rail service on the Portland and Western line in February 2009. This service connects communities on the southwest side of the metro area to the Beaverton Transit Center, making connections in Wilsonville, Tualatin, Tigard, Hall/Nimbus, and Beaverton. There are two stops presently serving Tigard. One stop is located at the Tigard Transit Center, just southeast of Pacific Highway at Commercial Street. The other is located west of the Washington Square Mall. Service is provided weekdays at half-hour frequency during the morning and evening commute periods. During the month of April 2009, average weekly WES trips totaled to 5,850 boardings. The RTP has plans to increase the frequency of service on this line which is supported by the city.

APPENDIX A
City of Tigard TSP – Transportation Improvement Projects

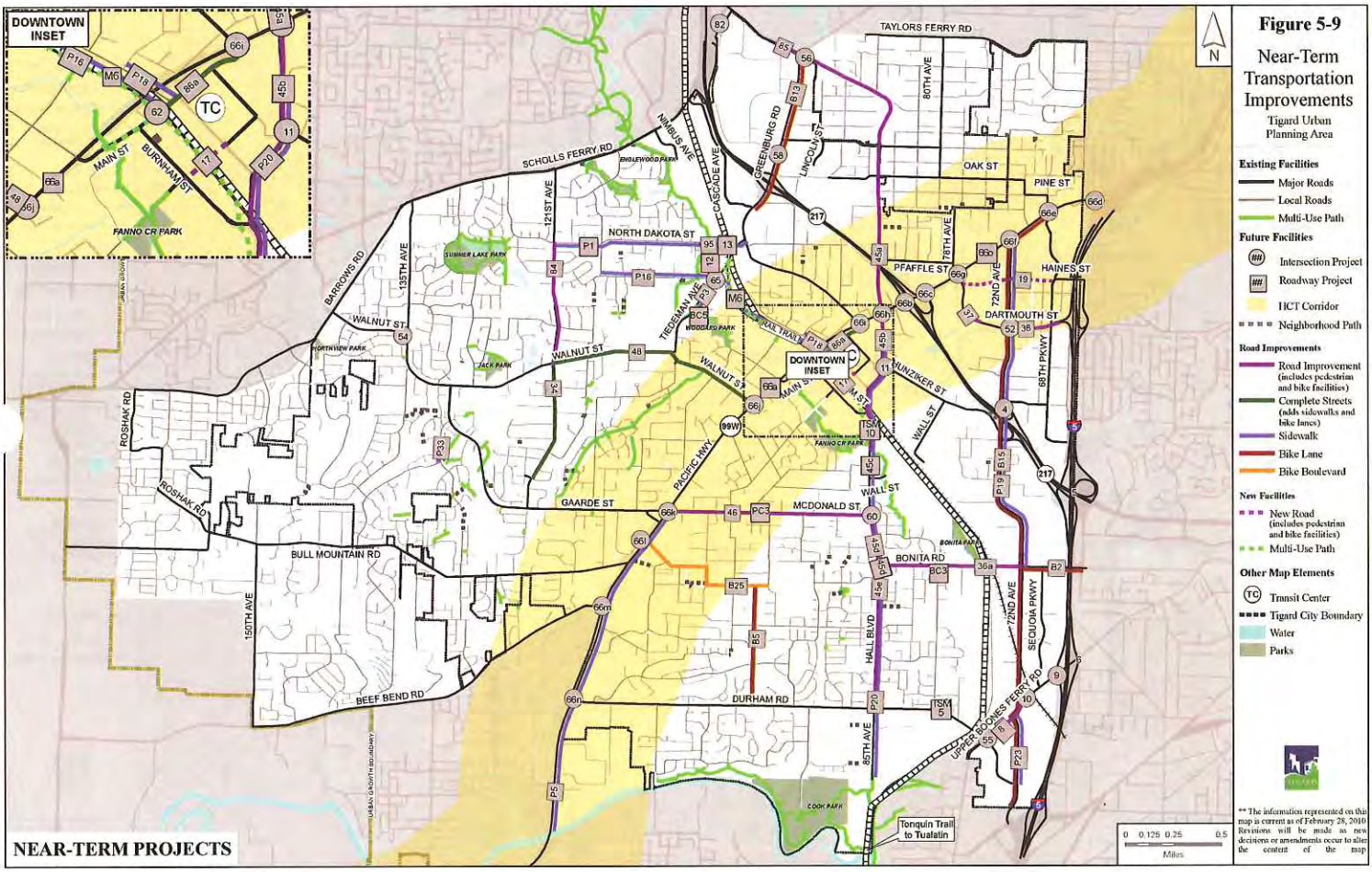


Figure 5-9

Near-Term Transportation Improvements

Tigard Urban Planning Area

Existing Facilities
- Major Roads
- Local Roads
- Multi-Use Path

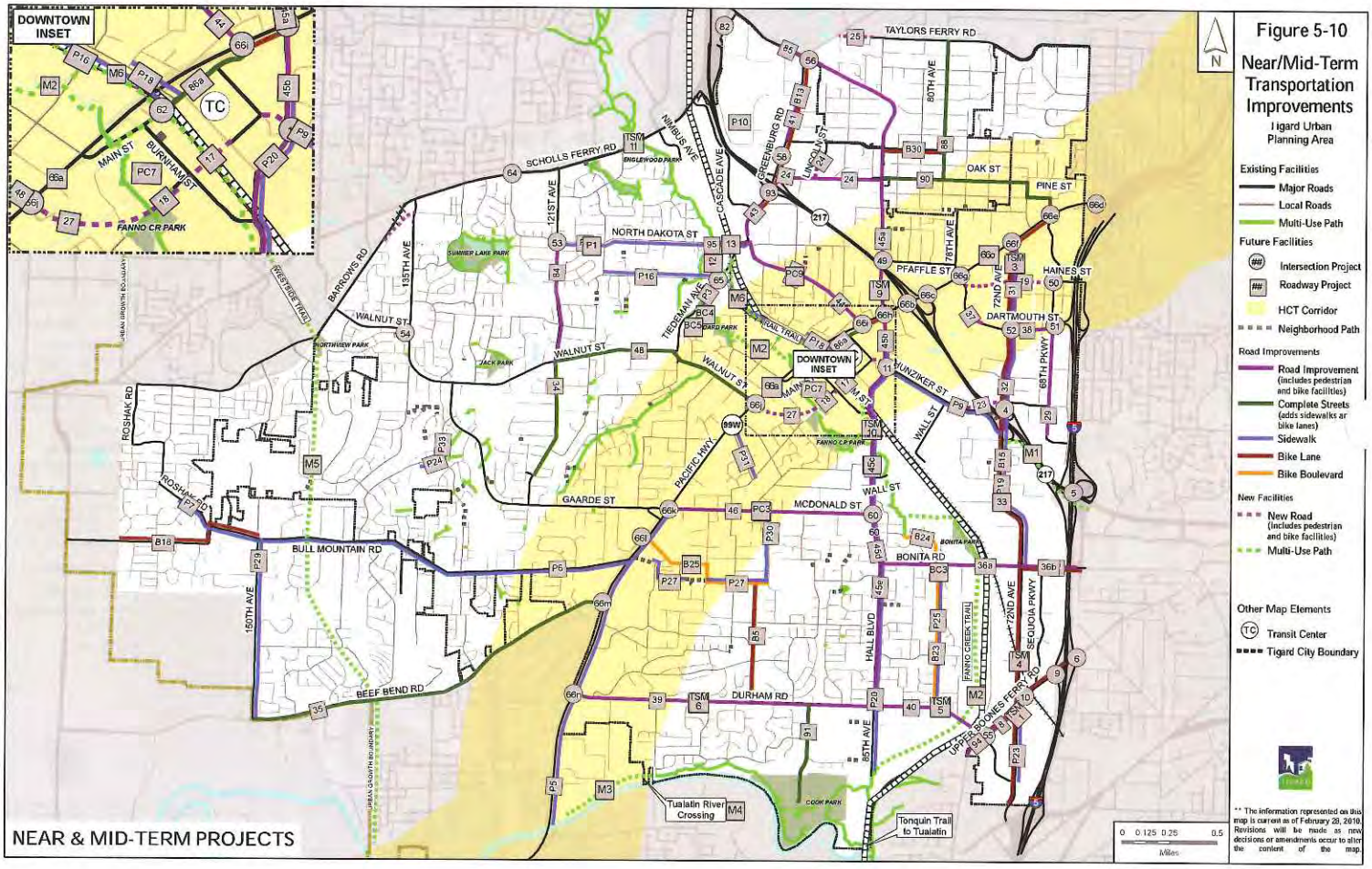
Future Facilities
- (###) Intersection Project
- [###] Roadway Project
- HCT Corridor
- Neighborhood Path

Road Improvements
- Road Improvement (includes pedestrian and bike facilities)
- Complete Streets (adds sidewalks and bike lanes)
- Sidewalk
- Bike Lane
- Bike Boulevard

New Facilities
- New Road (includes pedestrian and bike facilities)
- Multi-Use Path

Other Map Elements
- TC Transit Center
- Tigard City Boundary
- Water
- Parks

** The information represented on this map is current as of February 28, 2010. Revisions will be made as new decisions or amendments occur to alter the content of the map


DOWNTOWN INSET
TC
MAIN ST
BURNHAM ST
FANNO CR PARK
TAYLORS FERRY RD
SCHOLLS FERRY RD
NORTH DAKOTA ST
WALNUT ST
PFAFFLE ST
OAK ST
PINE ST
HAINES ST
DARTMOUTH ST
HUNZIKER ST
WALL ST
MCDONALD ST
GAARDE ST
BONITA RD
BULL MOUNTAIN RD
BEEF BEND RD
DURHAM RD
ROSHAK RD
BARROWS RD
135TH AVE
121ST AVE
150TH AVE
80TH AVE
76TH AVE
72ND AVE
68TH PKWY
72ND AVE
SEQUOIA PKWY
GREENBURG RD
CASCADE AVE
HALL BLVD
85TH AVE
PACIFIC HWY
TIEDEMAN AVE
NAEVUS AVE
UPPER BOONES FERRY RD
FANNO CREEK TRAIL
Tualatin River Crossing
Tonquin Trail to Tualatin
NEAR & MID-TERM PROJECTS
Figure 5-10
Near/Mid-Term Transportation Improvements
Tigard Urban Planning Area
Existing Facilities
Major Roads
Local Roads
Multi-Use Path
Future Facilities
Intersection Project
Roadway Project
HCT Corridor
Neighborhood Path
Road Improvements
Road Improvement (includes pedestrian and bike facilities)
Complete Streets (adds sidewalks or bike lanes)
Sidewalk
Bike Lane
Bike Boulevard
New Facilities
New Road (includes pedestrian and bike facilities)
Multi-Use Path
Other Map Elements
Transit Center
Tigard City Boundary
0 0.125 0.25 0.5
Miles
** The information represented on this map is current as of February 28, 2010. Revisions will be made as new decisions or amendments occur to alter the content of the map.

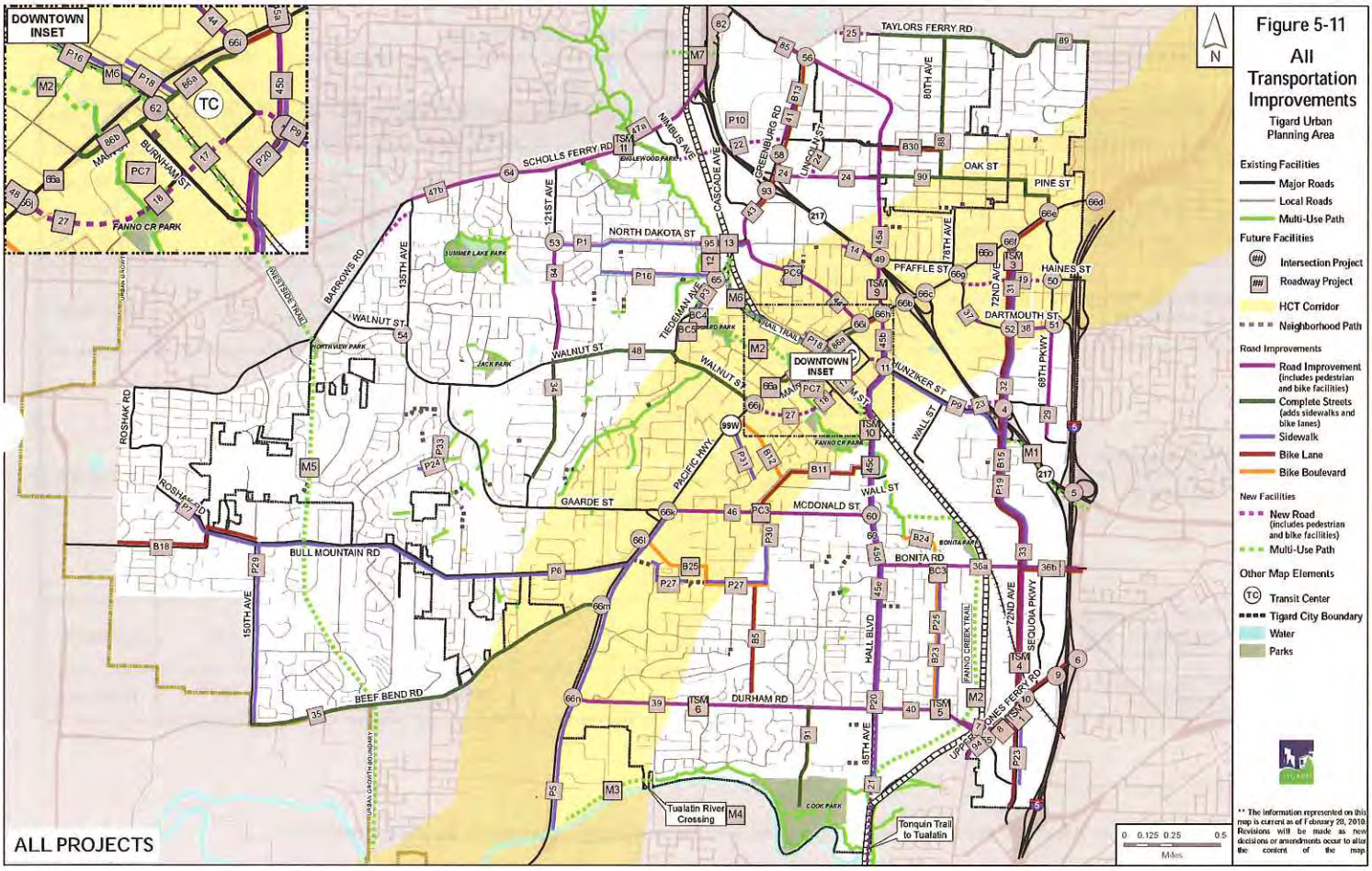


Figure 5-11

All Transportation Improvements

Tigard Urban Planning Area

Existing Facilities
- Major Roads
- Local Roads
- Multi-Use Path

Future Facilities
- Intersection Project
- Roadway Project
- HCT Corridor
- Neighborhood Path

Road Improvements
- Road Improvement (includes pedestrian and bike facilities)
- Complete Streets (adds sidewalks and bike lanes)
- Sidewalk
- Bike Lane
- Bike Boulevard

New Facilities
- New Road (includes pedestrian and bike facilities)
- Multi-Use Path

Other Map Elements
- Transit Center
- Tigard City Boundary
- Water
- Parks

** The information represented on this map is current as of February 28, 2010. Revisions will be made as new decisions or amendments occur to alter the content of the map.

TABLE 5-6 MULTI-MODAL PROJECT IMPROVEMENT LIST

Project ID	Name	Project Type	Description[3]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
Roadway Projects								
4	OR 217/72nd Ave Interchange Improvements	Interchange Improvement	Complete interchange reconstruction with additional ramps and overcrossings.	Tigard Triangle	ODOT	Near-Term	Yes	$19,500,000
5	I-5/OR 217 interchange from 72nd Ave to Bangy Road	Interchange Improvement	Interchange Improvements		ODOT	Long-Term	No	$81,500,000
6	Upper Boones Ferry/ I-5 northbound	Interchange Improvement	Widen bridge to 6 lanes to provide 2nd westbound through lane, 2nd northbound left-turn lane, eastbound separate through and left-turn lanes.		ODOT	Long-Term	No	$20,000,000
7	Durham Road/Upper Boones/72nd realignment and widening	Road Widening and/or Reconfiguration	Realign/reconfigure/widen Durham Road, Upper Boones Ferry Road/72nd Avenue intersections/roadway to accommodate traffic flow between Durham Road and Interstate 5. Widen Upper Boones. A refinement study is needed to address specific alignment of Durham and Upper Boones Ferry and alignment of southern Durham Road and 72nd Ave. As part of this project Upper Boones Ferry Road from Durham to Sequoia Parkway should be widened to 5 lanes.		Tigard	Long-Term	Yes	$6,000,000
8	Upper Boones Ferry Road Widening between upper 72nd Ave and lower 72nd	Road Widening	Widen Upper Boones Ferry from lower 72nd Avenue to upper 72nd Avenue.		Tigard	Near-Term	Yes	$2,000,000
9	Upper Boones Ferry/ I-5 southbound	Intersection Improvement	Eastbound right turn lane		ODOT/ Tigard	Near-Term	Yes	$2,000,000

[3] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[4]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
10	72nd/Upper Boones Ferry	Intersection Improvement	Intersection Improvements		Tigard	Near-Term	Yes	$2,000,000
11	Hall/Hunziker/Scoffins intersection Realignment	Intersection Realignment	Realign offset intersection to cross intersection to alleviate congestion and safety issues.		ODOT/Tigard	Near-Term	Yes	$5,000,000
12	Tiedeman Realignment at North Dakota	Road Realignment	Realign Tiedeman and/or North Dakota between Tigard Street and North Dakota to form a T Intersection at North Dakota west of the railroad tracks.		Tigard	Near-Term	Yes	$5,500,000
13	Greenburg/North Dakota Intersection Geometry Improvements	Intersection Realignment	After realignment of Tiedeman (Project: #12), realign remaining legs to conventional form.	WSRC	Tigard	Near-Term	Yes	$4,000,000
14	North Dakota-Pfaffle Highway 217 over crossing	New Road/ Intersection Realignment	Pfaffle-North Dakota east-west connection with Hwy 217 over-crossing to provide a neighborhood route (See Projects: #12 and #13).	WSRC	Tigard	Long-Term	No	$15,000,000
17	Ash Ave Railroad Crossing (Burnham to Commercial)	New Road	Extend Ash Avenue across the railroad tracks from Burnham to Commercial Street.	Downtown	Tigard/ODOT Rail	Near-Term	Yes	$3,000,000
18	Ash Ave Extension (Maplewood to Burnham)	New Road	Extend Ash Avenue from Maplewood, across Fanno Creek, to Burnham.	Downtown	Tigard	Mid-Term	Yes	$5,000,000
19	Atlanta Street Extension	New Road	Extend Atlanta Street west to Dartmouth Street	Tigard Triangle	Tigard	Mid-Term	Yes	$3,300,000
21	Hall Boulevard Extension	New Road	Extend south to Tualatin across the Tualatin River		ODOT/Tigard	Long-Term	No	$60,000,000
22	Hwy 217 Over-crossing at Washington Square Regional Center - Cascade Plaza	New Road	Provide a new connection from Nimbus to Locust	WSRC	Tigard	Long-Term	Yes	$20,000,000
23	Hwy 217 over-crossing - Hunziker-Hampton Connection	New Road	Connect Hunziker Road to 72nd Avenue—requires over-crossing over ORE 217—removes existing 72nd Ave/Hunziker intersection		ODOT/Tigard	Mid-Term	Yes	$10,000,000

[4] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[5]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
24	Oak-Lincoln-Locust Street Collector System (Washington Square Connectivity Improvements)	New Road	Improvements to distribute east/west traffic between Locust and Oak Streets and improve accessibility to Lincoln Center commercial district. Includes Lincoln Street extension to Oak Street. (Lincoln Street portion anticipated to be constructed by development)	WSRC	Tigard	Mid-Term	Yes	$1,000,000
25	Taylors Ferry Road Extension	New Road	Extend to Oleson Road	WSRC	Washington County	Mid-Term	Yes	$4,390,000
27	Walnut to Ash Avenue Extension	New Road	Extend Walnut east of Pacific Hwy-99W to meet Ash Avenue.	Downtown	Tigard	Mid-Term	Yes	$14,000,000
29	68th Avenue	Road Widening	Widen to 2/3 lanes between Dartmouth/I-5 Ramps and south end	Tigard Triangle	Tigard	Mid-Term	No	$10,000,000
31	72nd Avenue Widening: Ore 99W to Dartmouth	Road Widening	Widen to 4/5 lanes	Tigard Triangle	Tigard	Mid-Term	Yes	$8,000,000
32	72nd Avenue Widening: Dartmouth to Hunziker	Road Widening	Widen to 4/5 lanes, including bridge	Tigard Triangle	Tigard	Mid-Term	Yes	$7,000,000
33	72nd Avenue Widening: Hunziker to Durham	Road Widening	Widen to 2/3 lanes		Tigard	Long-Term	No	$14,000,000
35	Beef Bend Road Complete Street	Complete Street	Complete 2/3-lane section from 131st to 150th.		Washington County	Mid-Term	No	$2,280,000
36a	Bonita Road Widening	Road Widening	Widen to 4/5-lanes from Hall to 72nd		Tigard	Near-Term	No	$20,000,000
36b	Bonita Road Widening	Road Widening	Widen to 4/5-lanes from 72nd Avenue to city limits east of I-5 (Bangy)		Tigard	Mid-Term	No	$25,000,000
37	Dartmouth St. Widening	Road Widening	Complete 4/5-lane section from Costco to 72nd Ave (small section missing in eastbound direction only)	Tigard Triangle	Tigard	Near-Term	No	$320,000
38	Dartmouth St. Widening	Road Widening	Widen to 4 lanes plus turn lanes and sidewalks between 72nd Avenue and I-5 (68th)	Tigard Triangle	Tigard	Near-Term	Yes	$3,000,000
39	Durham Road Widening	Road Widening	Widen to 4/5-lanes from Pacific Hwy-99W to Hall Blvd.		Tigard	Mid-Term	Yes	$15,000,000

[5] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[6]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
40	Durham Road Widening	Road Widening	Widen to 4/5 lanes (total, both directions) between Hall Boulevard and Upper Boones Ferry Road. Add 2nd southbound left-turn lane at the intersection of Hall/Durham.		Tigard	Mid-Term	Yes	$8,000,000
41	Greenburg Rd. Widening	Road Widening	Widen to 4 lanes adjacent to cemetery	WSRC	Washington County	Mid-Term	No	$3,780,000
43	Greenburg Rd. Widening, South of Hwy 217 to N. Dakota	Road Widening	Shady Lane to N. Dakota, Widen to 4/5 lanes. Includes bridge replacement.	WSRC	Tigard	Mid-Term	Yes	$6,000,000
44	Greenburg Road Widening N. Dakota to 99W	Road Widening	Tiedeman to OR 99W, Widen to 4/5 lanes with bikeways and sidewalks		Tigard	Mid-Term	No	$15,000,000
45a	Hall Boulevard Widening, Oleson to 99W	Road Widening	Widen to 2/3 lanes; build sidewalks and bike lanes; safety improvements	WSRC	ODOT/ Tigard	Near-Term	Yes	$3,500,000
45b	Hall Boulevard Widening, Highway 99W to Fanno Creek	Road Widening	Widen to up to 4/5 lanes, depending on corridor plan	Downtown	ODOT/ Tigard	Near-Term	Yes	$2,500,000
45c	Hall Boulevard Widening, Fanno Creek to McDonald Street	Road Widening	Widen to up to 4/5 lanes, depending on corridor plan		ODOT/ Tigard	Mid-Term	Yes	$2,500,000
45d	Hall Boulevard Widening, McDonald Street to Bonita Road	Road Widening	Widen to up to 4/5 lanes, depending on corridor plan		ODOT/ Tigard	Near-Term	Yes	$1,500,000
45e	Hall Boulevard Widening, Bonita Road to Durham	Road Widening	Widen to up to 4/5 lanes, depending on corridor plan		ODOT/ Tigard	Near-Term	Yes	$3,000,000
46	McDonald Street Widening, 99W to Hall	Road Widening	Widen to 2/3 lanes with sidewalks, bike lanes, and safety improvements		Tigard	Near-Term	Yes	$8,000,000
47a	Scholls Ferry Rd Widening, Hwy 217 to 121st	Road Widening	Widen to 7 lanes between OR 217 and 121st Avenue and improve intersections		ODOT/ Washington County	Long-Term	Yes	$19,700,000
47b	Scholls Ferry Rd ROW preservation, 121st to SW Barrows	Road Widening	ROW preservation for potential 7 lanes between 121st Avenue and Barrows Road, improve intersections		Washington County	Long-Term	No	$8,000,000

[6] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[7]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
49	Pfaffle St/Hall Blvd	Intersection Improvement	Traffic signal or other intersection treatment		ODOT/Tigard	Near-Term	Yes	$500,000
50	68th/Atlanta/Haines	Intersection Improvement	Traffic signal and turn lanes where necessary	Tigard Triangle	Tigard	Near-Term	Yes	$500,000
51	68th/Dartmouth	Intersection Improvement	Install traffic signal and add turn lanes where necessary	Tigard Triangle	ODOT/Tigard	Near-Term	No	$500,000
52	72nd/ Dartmouth	Intersection Improvement	Traffic signal and intersection widening	Tigard Triangle	Tigard	Near-Term	Yes	$1,100,000
53	121st/ North Dakota	Intersection Improvement	Traffic signal		Tigard	Mid-Term	No	$500,000
54	135th Avenue/ Walnut Street	Intersection Improvement	Intersection Improvements		Tigard	Near-Term	Yes	$400,000
56	Greenburg/Oleson/Hall	Intersection Improvement	Intersection Improvements	WSRC	ODOT /WACO	Near-Term	Yes	$3,000,000
58	Greenburg/Washington Square Road	Intersection Improvement	Install Boulevard treatment at Greenburg/Washington Square Road	WSRC	ODOT/WACO	Near-Term	Yes	$1,000,000
60	Hall/McDonald	Intersection Improvement	Add southbound right-turn lane from Hall Blvd to McDonald Street.		ODOT/Tigard	Near-Term	Yes	$400,000
62	Main Street/Tigard Street	Intersection Improvement	Install a traffic signal at Main Street/Tigard Street. Project need should be reevaluated after Highway 99W/Greenburg Road/Hall Boulevard improvements and Main Street improvements are completed.	Downtown	Tigard	Near-Term	No	$350,000
64	North Dakota/ 125th/ Scholls Ferry Rd	Intersection Improvement	Intersection improvements		WACO/Tigard	Mid-Term	No	$1,500,000
65	Tiedeman Street/Tigard Street	Intersection Improvement	Intersection Improvements with sidewalks and bike lanes		Tigard	Near-Term	No	$750,000

[7] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[8]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
66	Hwy 99W Intersection Improvements	Intersection Improvement	Provide increased capacity at priority intersections, including bus queue bypass lanes in some locations, improved sidewalks, priority pedestrian crossings, and an access management plan, while retaining existing 4/5-lane facility (plus auxiliary lanes) from I-5 to Durham Road.		ODOT	Near-Term	Yes	See 66a - 66o
66a	Pacific Highway 99W	Signal Improvements	Provide signal interconnect from I-5 to Durham Road (Metro TSMO plan includes Arterial Corridor Management and transit signal priority for the entire corridor through Tigard with adaptive signal control from Highway 217 to the eastern city limits).		ODOT/Tigard	Near-Term	Yes	$2,500,000
66b	Highway 217 SB Ramps/Highway 99W	Intersection Improvement	Intersection capacity improvements such as a 2nd right turn lane from off ramp		ODOT	Near-Term	Yes	$7,000,000
66c	Highway 217 NB Ramps/Highway 99W	Intersection Improvement	Intersection capacity improvements such as a second northbound left turn lane		ODOT	Near-Term	Yes	$7,000,000
66d	Pacific Highway 99W/I-5 SB	Intersection Improvement	Intersection improvements such as dual northbound through lanes on 99W and dual lanes for I-5 ramps to reduce confusion, congestion and related accidents	Tigard Triangle	ODOT	Near-Term	Yes	$5,000,000
66e	Pacific Highway 99W/68th Ave	Intersection Improvement	Intersection improvements such as added turn lanes, protected left-turns at 68th	Tigard Triangle	ODOT/Tigard	Near-Term	Yes	$1,000,000

[8] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[9]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
66f	Pacific Highway 99W/72nd Ave	Intersection Improvement	Intersection improvements such as added turn lanes, a southbound right turn pocket	Tigard Triangle	ODOT/Tigard	Near-Term	Yes	$2,000,000
66g	Pacific Highway 99W/Dartmouth St.	Intersection Improvement	Intersection improvements - Turn lanes and auxiliary lanes	Tigard Triangle	ODOT/Tigard	Near-Term	Yes	$6,000,000
66h	Pacific Highway 99W/Hall Boulevard	Intersection Improvement	Intersection improvements such as an additional eastbound and westbound through lane on 99W (CIP 95005), exclusive left-, through-, and right-turn lanes on each side street approach (CIP 95031).	Downtown	ODOT/Tigard	Near-Term	Yes	$6,500,000
66i	Pacific Highway 99W/Greenburg Road/Main Street	Intersection Improvement	Intersection improvements such as exclusive turn lanes on both Greenburg Road and Main street approaches, additional eastbound and westbound through lane on Pacific 99W.	Downtown	ODOT/Tigard	Near-Term	Yes	$4,000,000
66j	Pacific Highway 99W/ Walnut Street	Intersection Improvement	Intersection improvements such as additional turn lanes		ODOT/Tigard	Near-Term	Yes	$1,500,000
66k	Pacific Highway 99W/ Gaarde Street/McDonald Street	Intersection Improvement	Intersection improvements such as a third through lane on Pacific Hwy-99W and additional turn lanes.		ODOT/Tigard	Near-Term	Yes	$8,000,000
66l	Pacific Highway 99W/ Canterbury	Intersection Improvement	Intersection improvements such as a left turn lane		ODOT/Tigard	Near-Term	Yes	$2,000,000
66m	Pacific Highway 99W/ Beef Bend Road	Intersection Improvement	Intersection improvements such as a southbound right turn lane (on Pacific Hwy 99W)		ODOT/Washingt on County	Near-Term	Yes	$1,500,000
66n	Pacific Highway 99W/ Durham Road	Intersection Improvement	Intersection improvements such as a additional turn lanes		ODOT/Tigard	Near-Term	Yes	$1,500,000
66o	Pacific Highway 99W Access Management	Access Management	Implement access management strategies and median projects identified in the Highway 99W Plan (related to roadway project #66)		ODOT	Near-Term	Yes	$6,000,000

[9] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[10]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
82	Highway 217 NB On-ramp/Scholls Ferry Road/Washington Square Road Interchange Improvement	Intersection Improvement	Intersection Improvements	WSRC	ODOT	Near-Term	No	$5,000,000
85	Hall Boulevard, Washington Square Regional Center	Road Widening	Add an eastbound through lane on Hall Blvd. from Pamelad Road to Greenburg Road that removes the right-turn lane drop at Pamelad Road and ends as a right-turn lane at Greenburg Road. This completes the five-lane section on Hall Blvd. from Scholls Ferry Road to Greenburg Road.	WSRC	ODOT/Tigard	Near-Term	No	$500,000
93	Highway 217/Greenburg Intersection	Intersection Improvement	Add a right-turn lane from Greenburg to SB Higway 217	WSRC	ODOT	Mid-Term	Yes	$5,000,000
95	North Dakota at Fanno Creek Bridge Replacement	Bridge Replacement	Replace existing bridge over Fanno Creek along North Dakota to include sidewalks		Tigard	Near-Term	Yes	$2,500,000
Complete Streets (Upgrade with Pedestrian/Bicycle Facilities)								
34	121st Avenue Complete Street, Walnut to Gaarde	Complete Street	Upgrade 121st Avenue to a 2-lane roadway with sidewalks and bicycle lanes between Walnut and Gaarde Street		Tigard	Near-Term	Yes	$1,580,000
48a	Walnut Street Complete Street, 116th to Tiedeman	Complete Street	Widen to 2 with turn lanes where necessary including sidewalks, bicycle lanes, and safety improvements		Tigard	Near-Term	Yes	$2,000,000
48b	Walnut Street Complete Street, Tiedeman to Pacific Hwy-99W	Complete Street	Widen to 2 with turn lanes where necessary including sidewalks, bicycle lanes, and safety improvements		Tigard	Near-Term	Yes	$5,000,000
84	121st Avenue Complete street, Walnut to N Dakota	Complete Street	Upgrade from Walnut Street to North Dakota Street – 2 lanes with turn lanes where necessary plus bike lanes and sidewalks		Tigard	Near-Term	Yes	$380,000

[10] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[11]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
86a	Main Street Green Street (Phase I)	Complete Street	Provide 2 travel lanes, turn lanes where necessary, on-street parking, good sidewalks, and lots of pedestrian-friendly amenities on Main Street from the railroad tracks south to Highway 99W.	Downtown	Tigard	Near-Term	Yes	$3,500,000
86b	Main Street Green Street (Phase II)	Complete Street	Provide 2 travel lanes, turn lanes where necessary, on-street parking, good sidewalks, and lots of pedestrian-friendly amenities on Main Street from the railroad tracks north to Hwy 99W	Downtown	Tigard	Near-Term	Yes	$2,000,000
88	80th Avenue	Complete Street	Install bike lanes and construct sidewalks on both sides of the street from Taylor's Ferry Road to Oak Street		Washington County	Mid-Term	No	$1,350,000
89	Taylor's Ferry Rd	Complete Street	Install sidewalks on both sides of the street from Washington Drive to 62nd Avenue		Washington County	Long-Term	No	$3,220,000
90	Oak Street	Complete Street	Install sidewalks on both sides of the street from Hall Boulevard to 81st Avenue		Washington County	Mid-Term	No	$1,710,000
91	92nd Avenue	Complete Street	Install bike lanes and sidewalk on both sides of street from Durham Road to Cook Park		Tigard	Mid-Term	Yes	$800,000
94	Upper Boones Ferry Road south of Durham	Complete Streets	Upgrade with turn lane, pedestrian, bicycle facilities and consistent with City of Durham planned improvements.		Washington County/Tigard	Mid-term	No	$2,000,000
Bicycle Projects								
B1	Tigard Transit Center Bicycle Hub	Bicycle Facilities	Provide bicycle hub at Tigard Transit Center	Downtown	Tigard/TriMet	Near-Term	Yes	$50,000
B2	Bonita Road	Bike Lane	Install eastbound bike lanes from 72nd Avenue to I-5 Bridge		Tigard	Near-Term	Yes	$200,000
B5	98th Avenue	Bike Lane	Install bike lanes on both sides of street from Murdock to Durham Road		Tigard	Near-Term	Yes	$150,000

[11] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[12]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
B11	O'Mara Street	Bike Boulevard	Install bike boulevard treatments on both sides of O'Mara from McDonald Street to Hall Boulevard		Tigard	Long-Term	Yes	$60,000
B12	Frewing Street	Bike Boulevard	Install bike boulevard treatments on both sides of the street from Pacific Hwy-99W to O'Mara Street		Tigard	Long-Term	Yes	$130,000
B13	Greenburg Road	Bike Lane	Install bike lanes on both sides of the street from Hall Boulevard to Cascade Avenue	WSRC	WACO/ ODOT	Near-Term	Yes	$3,600,000
B15	72nd Avenue	Bike Lane	Install bike facilities on both sides of the street from Pacific Hwy-99W to South City Limits		Tigard	Near-Term	Yes	$2,000,000
B16	Upper Boones Ferry Road	Bike Lane	Install bike lanes on both sides of street from I-5 to Durham Road		Tigard	Mid-Term	Yes	$1,000,000
B18	Bull Mountain Road Bike Lanes	Bike Lane	Install bike lanes on both sides of street.		WACO	Mid-Term	Yes	$800,000
B23	79th Avenue	Bike Boulevard	Install bike boulevard treatments from Bonita Road to Durham Road		Tigard	Mid-Term	Yes	$130,000
B24	Fanno Creek Drive	Bike Boulevard	Install bike boulevard treatments on both sides of the street from the Fanno Creek Trailhead to Bonita Road		Tigard	Mid-Term	Yes	$100,000
B25	Murdock Street	Shared-lane	Install shared-lane markings from 96th Avenue to Pacific Hwy-99W		Tigard	Near-Term	Yes	$10,000
B30	Locust Street	Bike Lanes	Install bike lanes on both sides of the street from Hall Boulevard to 80th Avenue	WSRC	WACO	Mid-Term	Yes	$450,000
B32	Pacific Hwy-99W Bike Lanes	Bike Lane Gaps	Fill in gaps in Bike lanes along Pacific Hwy-99W		Tigard/ ODOT	Near-Term	Yes	$500,000
BC3	Bonita Road at 79th	Crossing	Crossing Improvement on Bonita Road at 79th		Tigard	Near-Term	Yes	$30,000
BC4	Tiedeman at Fanno Creek Trail	Trail Realignment	Crossing improvements including trail realignment, curb cuts, pavement markings, and signage		Tigard	Mid-Term	Yes	$200,000

[12] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[13]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
BC5	Tiedeman at Fanno Creek Trail	Crossing	Crossing improvements including curb cuts, pavement markings, and signage		Tigard	Near-Term	Yes	$20,000
Mixed-use Path Projects								
M1	Hunziker Link to Lake Oswego	10-foot wide paved pathway	Linkage to Kruse Way Trail in Lake Oswego		Tigard/Lake Oswego	Mid-Term	No	$2,000,000
M2	Fanno Creek Trail	10-foot wide paved pathway	Complete gaps along the Fanno Creek multiuse path from the Tualatin River to Tigard Library and from Pacific Hwy-99W to Tigard Street		Tigard	Mid-Term	Yes	$3,000,000
M3	Tualatin River Trail	10-foot wide paved pathway	Complete multiuse path from Cook Park to the Powerlines Corridor		Tigard	Mid-Term	No	$1,250,000
M4	108th Street Crossing of Tualatin River	Pedestrian Bridge	New bridge crossing north-south over the Tualatin River near 108th Avenue		Tigard/Tualatin	Mid-Term	No	$740,000
M5	Westside Trail	10-foot wide paved pathway	New regional multiuse path, and in Tigard will connect from Beaverton to the Tualatin River Trail		Tigard	Mid-Term	Yes	$1,920,000
M6	Tiedeman Avenue/Main Street Rail Trail	10-foot wide paved pathway	Convert a segment of inactive railroad right-of-way adjacent to Tigard Street from Tiedeman Avenue to Main Street to a multiuse path	Downtown	Tigard	Near-Term	Yes	$1,250,000
M7	Washington Square Regional Center Highway 217 Pedestrian/Bike Over Crossing	10-foot wide paved pathway	New pedestrian and bicycle bridge over Hwy 217 from Nimbus Avenue to Scholls Ferry Road	WSRC	Tigard/WACO	Long-Term	No	$3,700,000
M8	Neighborhood Trail Connections - Various locations	Neighborhood trails	Formalize neighborhood trail connections throughout the city		Tigard	Near-Term	Yes	$1,100,000
Pedestrian Projects								
P1	North Dakota Street Sidewalks	Sidewalk Gaps	Complete gaps in sidewalks on North Dakota from 121st Avenue to Tiedeman.		Tigard	Near-Term	Yes	$810,000
P3	Tiedeman Avenue Sidewalks	Sidewalk Gaps	Install sidewalks on both sides of the street from Fanno Creek Trail to North Dakota-Greenburg		Tigard	Near-Term	Yes	$1,400,000

[13] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[14]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
P5	Pacific Hwy-99W Sidewalks	Sidewalk Gaps	Complete gaps in sidewalk from McDonald to south city limits		ODOT	Near-Term	No	$1,300,000
P6	Bull Mountain Road Sidewalks	Sidewalk Gaps	Complete gaps in sidewalk from Pacific Hwy- 99W to Roshak Road		WACO	Mid-Term	No	$2,580,000
P7	Roshak Road Sidewalks	Sidewalk Gaps	Complete gaps in sidewalk, mainly between 158th Terrace and Bull Mountain Road		WACO	Mid-Term	No	$640,000
P9	Hunziker Street Sidewalks	Sidewalk Gaps	Install sidewalk on both sides of the street from 72nd Avenue to Hall Boulevard		Tigard	Mid-Term	No	$700,000
P10	Washington Square Regional Center Pedestrian Improvements	Pedestrian Improvements	Improve sidewalks, lighting, crossings, bus shelters, and benches in WSRC	WSRC	Tigard	Mid-Term	Yes	$3,900,000
P16	Tigard Street	Sidewalk	Install sidewalks on both sides of the street from 115th Avenue to Pacific Hwy-99W		Tigard	Near-Term	Yes	$1,200,000
P18	Commercial Street	Sidewalk	Install sidewalks on both sides of the street from Main Street to Lincoln Street	Downtown	Tigard	Near-Term	Yes	$400,000
P19	72nd Avenue	Sidewalk	Complete gaps in sidewalk from Pacific Hwy 99W to Bonita Road		Tigard	Near-Term	No	$2,500,000
P20	Hall Boulevard	Sidewalk	Complete gaps in sidewalk from Hunziker Street to Durham Road		ODOT/Tigard	Near-Term	Yes	$1,800,000
P23	72nd Avenue	Sidewalk	Install sidewalk on both sides of street from Upper Boones Ferry Road to Durham Road		Tigard	Near-Term	No	$800,000
P24	Benchview Terrace	Sidewalk Gaps	Install sidewalk on both sides of street for missing sections west of Greenfield Drive		Tigard	Mid-Term	No	$1,200,000
P25	79th Avenue	Sidewalk Gaps	Install sidewalk on both sides of street from Bonita Road to Durham Road		Tigard	Mid-Term	No	$800,000
P27	Murdock Street	Sidewalk Gaps	Install sidewalk on both sides of street from 96th avenue to Pacific Highway-99W		Tigard	Mid-Term	No	$570,000

[14] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[16]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
P29	150th Avenue	New Sidewalk	Install sidewalk on both sides of street from Bull Mountain Road to Beef Bend Road		WACO	Mid-Term	No	$900,000
P30	97th Avenue	Sidewalk Gaps	Install sidewalk on both sides of street from McDonald Street to Murdock Street		Tigard	Near-Term	Yes	$400,000
P31	Garrett Street	Sidewalk	Install sidewalks on both sides of the street from Pacific Highway-99W to Ash Avenue		Tigard	Near-Term	No	$160,000
P33	Greenfield Drive	New Sidewalk	Install sidewalk on both sides of street for missing section south of Benchview Terrace		Tigard	Near-Term	No	$280,000
PC3	Crosswalk on McDonald at O'Mara and 98th Ct	Pedestrian Signing/Striping	Pedestrian/bike improvements at unsignalized intersection at McDonald/O'Mara/98th Ct		Tigard	Near-Term	No	$50,000
PC7	Tigard Town Center (Downtown) Pedestrian Improvements	Pedestrian Facilities	Improve sidewalks, lighting, crossings, bus shelters and benches throughout the downtown including: Pacific Highway-99W, Hall Blvd, Main Street, Hunziker, Walnut and neighborhood streets.		Tigard	Near-Term	Yes	$4,880,000
PC9	Greenburg/95th Raised Pedestrian Refuge and Marked Crosswalk	Pedestrian Signing/Striping	Construct pedestrian/bike improvements at the existing unsignalized crosswalk at Greenburg/95th		Tigard	Mid-Term	Yes	$50,000
Transit Projects								
T2	Transit Stop Amenity Improvements on Highway 99W	Transit Amenities	Support existing high frequency bus service on the Pacific Highway-99W corridor by providing benches, shelters, and real-time information at bus stops		Tigard/ TriMet	Near-Term	Yes	$400,000
T3	Tigard Connector Service in the Tigard Triangle	Transit Connector	Provide local connector service serving Tigard Triangle to Downtown, and/or the Washington Square Mall and potentially residential areas.	Tigard Triangle	Tigard/ TriMet	Long-Term	No	$750,000

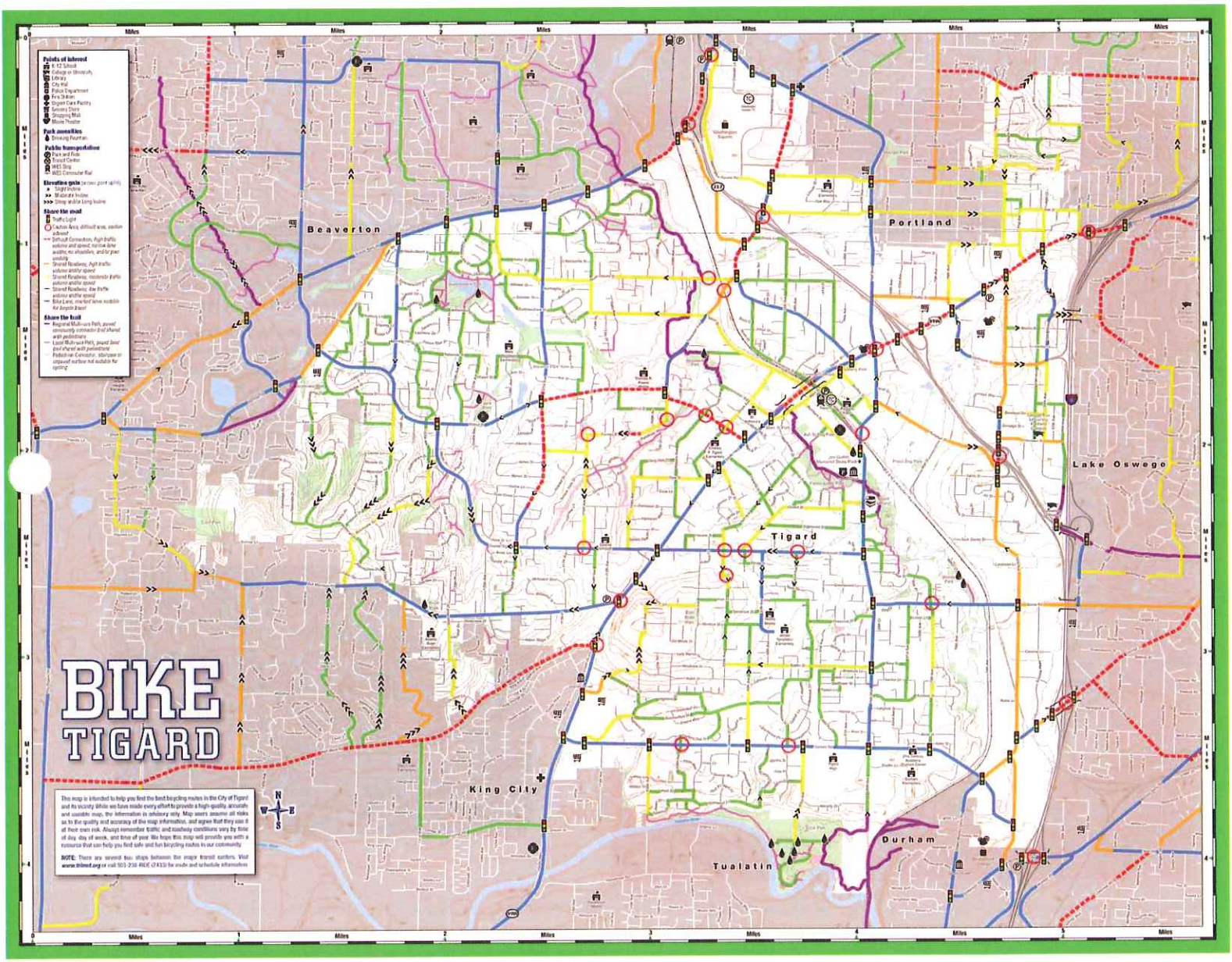
[15] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

Project ID	Name	Project Type	Description[16]	Special Area	Jurisdic-tion	Time frame	Financially Constrained?	Cost Estimate
T4	HCT Planning, Ph 1	Transit	Land use planning and alternatives analysis for HCT		TriMet	Near-Term	Yes	$1,000,000
T5	HCT Planning, Ph 2	Transit	Land use planning and alternatives analysis for HCT		TriMet	Mid-Term	Yes	$4,000,000
Transportation System Management								
TSM1	Upper Boones Ferry Road	Arterial Corridor Management	Provide Arterial Corridor Management along Corridor #2 (I-5) in the Metro TSMO Plan		Tigard	Mid-Term	No	$1,300,000
TSM3	72nd Avenue	Arterial Corridor Management	Provide Arterial Corridor Management on 72nd Avenue along Corridor #2 (I-5) near the Upper Boones Ferry Road Interchange in the Metro TSMO Plan	Tigard Triangle	Tigard	Mid-Term	No	$1,600,000
TSM4	72nd Avenue	Arterial Corridor Management	Provide Arterial Corridor Management along Corridor #19 (Hwy 217) in the Metro TSMO Plan	Tigard Triangle	Tigard	Mid-Term	No	$1,700,000
TSM5	Durham Road	Arterial Corridor Management	Provide Arterial Corridor Management along Corridor #2 (I-5) in the Metro TSMO Plan		Tigard	Near-Term	No	$1,400,000
TSM6	Durham Road	Arterial Corridor Management	Provide Arterial Corridor Management along Corridor #19 (Hwy 217) in the Metro TSMO Plan		Tigard	Mid-Term	No	$1,500,000
TSM9	Hall Boulevard	Arterial Corridor Management	Provide Arterial Corridor Management and Transit Signal Priority on Hall Boulevard from Highway 217 to Pacific Highway-99W	WSRC	ODOT/Tigard/ Beaverton	Mid-Term	No	$3,700,000
TSM10	Hall Boulevard	Arterial Corridor Management	Provide Arterial Corridor Management from Pacific Highway-99W to the south terminus		ODOT/ Tigard	Near-Term	No	$1,900,000
TSM11	Scholls Ferry Rd	Arterial Corridor Management	Provide Arterial Corridor Management from River Road to Hall Boulevard		ODOT/ WACO/Tigard	Mid-Term	Yes	$4,200,000

The project timelines identified in Table 5-2 are depicted in Figure 5-9, Figure 5-10, and Figure 5-11. The first figure shows only near-term projects; Figure 5-10 shows the combined Near-Term and Mid-Term projects. Figure 5-11 shows all of the planned projects.

[16] All road projects include bicycle and pedestrian facilities, consistent with the street design standards for the street classification.

APPENDIX B
Bicycle Maps


BIKE
TIGARD
Points of Interest
K-12 School
College or University
Library
City Hall
Police Department
Fire Station
Urgent Care Facility
Grocery Store
Shopping Mall
Movie Theater
Park Amenities
Drinking Fountain
Public Transportation
Park and Ride
Transit Center
MAX Stop
WES Commuter Rail
Elevation gain (across given uphill)
Slight Incline
Moderate Incline
Steep and/or Long Incline
Share the road
Traffic Light
Caution Area, difficult area, caution advised
Bike Lane, marked lanes available for bicycle travel
Share the trail
Regional Multi-use Path, paved community connector trail shared with pedestrians
Local Multi-use Path, paved local trail shared with pedestrians
Beaverton
Portland
Lake Oswego
Tigard
King City
Tualatin
Durham
This map is intended to help you find the best bicycling routes in the City of Tigard and its vicinity. While we have made every effort to provide a high-quality, accurate and useable map, the information is advisory only. Map users assume all risks as to the quality and accuracy of the map information, and agree that they use it at their own risk. Always remember traffic and roadway conditions vary by time of day, day of week, and time of year. We hope this map will provide you with a resource that can help you find safe and fun bicycling routes in our community.
NOTE: There are several bus stops between the major transit centers. Visit www.trimet.org or call 503.238.RIDE (7433) for route and schedule information.
N
W
E
S

Tigard
Fanno Creek Greenway Trail

The Fanno Creek Greenway Trail connects communities in the metro region from Portland to Durham. This 2.7-mile section of the trail in Tigard offers great views of the creek as it meanders through three city parks and other natural areas preserved to promote the creek's floodplain and wetlands. These areas provide great habitat for coyotes, turtles and red-tailed hawks.

Follow the Greenway Trail south from Beaverton under Scholls Ferry Road or begin at a path next to 11338 Ironwood Drive in Tigard and turn right on the asphalt trail. Walk south through Englewood Park. Cross North Dakota Street, continuing south on the trail. Cross Tigard Street and follow the trail to Tiedeman Avenue. Turn left onto Tiedeman, walk 400 feet to the asphalt trail in Woodard Park and turn right. Follow the trail to Johnson Street. Turn left and walk to Highway 99. Cross at Main Street, where you can find places to eat and drink in the heart of Tigard.

Walk north on Main. As you cross Fanno Creek, follow signs into Fanno Creek Park. Stay east on the main trail which ends at Hall Boulevard. Nearby is the Tigard Civic Center with City Hall, the Police Station and the Jim Griffith Memorial Skatepark. A block south on Hall is the Tigard Library. A planned connecting trail across Hall will lead past the library south to Fanno Creek Drive.

Retrace your steps to the starting point.

5.4 miles | **11405** steps | difficulty | 45.446, -122.791

Restoring Nature

Fanno Creek for about 1 mile south of Scholls Ferry Road has been intensively restored, with native plantings by Fans of Fanno and stream realignment (to create meanders) by Clean Water Services. Ash and Hiteon creeks and other small streams flow into Fanno Creek along this stretch. Seagoing cutthroat trout and steelhead are seen here.

Woodard Park's 11 acres are best known for their spreading Oregon white oaks and tall ponderosa pines. Park structures were designed around the trees. Half the park was purchased by Metro with voter-approved natural areas bond measure funds in 1999.

Fanno Creek Park's 30 acres consist of wooded and open areas, floodplain and small ponds. Two of the four foot bridges spanning Fanno Creek were made from old flatbed rail cars. The park has been cleared of non-native Himalayan blackberry and replanted with native trees and shrubs, and more restoration and stream work are planned.

• • •

Crossing the creek


Tigard: Fanno Creek Greenway Trail
0
¼
½ miles
0
1320
2640 feet
Washington Square
TIGARD
Conestoga MS
Fowler MS
Woodward ES
Tigard ES
St. Anthony's ES
Tigard Transit Center
Greenway Park
Englewood Park
Black Bull Park
Windsor Place
Black Bull Greenway
Fanno Creek Greenway Trail
Shady Lane
Woodard Park
Windmill Park
Main Street Park
Fanno Creek Park
Knez Wetland
Potso Dog Park
Summer Hills Park
Lake Terrace Open Space
Tippett Place
Hunters Glen
Meadowglade
113 Place Greenway
Leron #3
Copstone
Merestone
Brookway
Genesis #2
Conestoga Tennis Courts
SW Scholls Ferry Rd
SW Pacific Hwy
SW Hall Blvd
SW Tigard St
SW North Dakota St
SW Johnson St
SW Main St
Greenburg Road
SW Washington Square Rd
SW Walnut St
SW Burnham St
SW Commercial St
SW Hunziker St
SW Ash Ave
SW Pioneer Ln
SW Spruce St
SW Locust St
SW Katherine St
SW Errol St
SW 121st Ave
SW Landau St
SW Mapleleaf St
SW Oak St
SW Pine St
SW Thorn St
SW Pfaffle St
SW Dartmouth St
SW Beveland Rd
SW Varns St
SW Shady Ln
SW Springwood Dr
SW Ironwood Loop
SW Black Diamond Way
SW Manzanita St
SW Anton Dr
SW Millview Ct
SW Summer St
Burlcrest Dr
SW Lynn St
SW Ann St
SW Carmen St
SW Fonner St
SW Alberta St
SW James St
SW Marion St
SW Hollow Ln
SW Park St
SW Derry Dell Ct
SW Cook Ln
SW Scoffins St
SW Maplewood Dr
SW Cascade Ave
SW Wall St
SW 74th Ave
SW 78th Ave

CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

MARKET ANALYSIS REPORT

APPENDIX 3E

TIGARD

JOHNSON REID
LAND USE ECONOMICS

CITY OF TIGARD, OR
MARKET ANALYSIS

In support of:

TIGARD HIGH CAPACITY TRANSIT CORRIDOR PLAN

PREPARED FOR:

METRO/CITY OF TIGARD

MARCH 2011

319 SW Washington Street, Suite 1020 Portland, OR 97204 503/295-7832 503/295-1107 (fax)

CONTENTS

I. INTRODUCTION

This market study is prepared as one component of the Tigard High Capacity Transit Corridor Land Use Plan project (THCTC). This project, initiated in 2010, is studying a broad corridor within the City of Tigard, Oregon for potential as a future route for high capacity transit service, as well as the location and character of potential station communities along the chosen transit alignment.

As part of this effort, Johnson Reid has prepared a market analysis of major land use categories in the area. This analysis outlines current and anticipated market conditions impacting viable development forms in the Plan Area. The anticipated demand for a range of prospective product types will inform the concept planning process in terms of mix of uses, likely development forms, and scale of supportable uses.

II. KEY CONCLUSIONS

- While the THCTC Plan project will eventually narrow its focus to a specific transit corridor through the City, the initial stages of this project uses the whole of the City of Tigard as the study area.

- The Primary Market Area can expect continued growth in all of the major land use categories: Residential, Retail, Office and Industrial. As Tigard and the rest of the region face economic, political, and environmental constraints to boundary expansion, infill and redevelopment will play a key part in the future growth of the city.

- The lower rents achievable in the suburban environment will limit some of the development types that the market is likely to bring to the area. However, in an environment where most existing uses are single-story with ample surface parking, significant increases in density can be achieved while still relying on "low-rise" construction to control costs. Two- to three-story buildings, perhaps with higher building coverage, and reduced parking and other design considerations can greatly increase the intensity of land use, without necessitating the higher construction costs of concrete and steel mid-rise buildings.

- The following table presents the 20-year demand for different land uses types in the Tigard Primary Market Area. The healthy overall demand in the larger market area provides flexibility in planning for the THCTC Land Use Plan Area. This demand will not all be captured in the Plan Area, but represents the larger pool of demand from which the Plan Area can draw.

FIGURE 1.1: PROJECTED DEMAND BY LAND USE
PRIMARY MARKET AREA

Land Use Category	New Space Demanded - 2010 - 2030								
	Base Scenario		Acreage	High Growth		Acreage	Low Growth		Acreage
Ownership Residential	3,715	units	na	4,010	units	na	3,420	units	na
Rental Residential	1,180	units	na	1,270	units	na	1,090	units	na
Retail/Commercial	509,800	sf	39.0	551,000	sf	42.2	469,020	sf	35.9
Office	1,592,100	sf	73.1	1,719,000	sf	78.9	1,464,730	sf	67.3
Industrial Total	1,443,000	sf	108.9	1,804,000	sf	136.2	1,082,000	sf	81.7
Warehouse/Distribution	*499,000*	*sf*	38.2	*624,000*	*sf*	47.8	374,000	*sf*	28.6
General Industrial	*342,000*	*sf*	26.2	*428,000*	*sf*	32.8	*257,000*	*sf*	19.7
Tech/Flex Space	*602,000*	*sf*	44.6	*752,000*	*sf*	55.7	451,000	*sf*	33.4

[1] High and low growth scenarios represent base case +/- 8% growth respectively.

[2] Acreage based on the following FAR assumptions: Retail .3 FAR; Office .5 FAR; Industrial .3 FAR

SOURCE: Johnson Reid, LLC

- There is a range of policy tools and strategies to improve feasibility in hypothetical station communities along the proposed corridor. They range from tools which simply allow the targeted development to occur (e.g. zoning, reduced parking ratios), to those which require certain development types, or provide financial incentives (e.g. reduced System Development Charge credits) or direct assistance to developers. Some of these policy tools have already been adopted by Tigard, while others could be considered to facilitate the development environment. (See the final chapter of this report.)

III. PRIMARY MARKET AREA

While the THCTC Plan project will eventually narrow its focus to a specific transit corridor through the City, the initial stages of this project uses the whole of the City of Tigard as the study area.

The first part of this analysis assumes the current City boundaries as the Primary Market Area (PMA) in which to assess the feasibility of different potential land use types over time. The uses considered in this report are Residential, Retail/Commercial, Office, and Industrial. Later sections of this report discuss sub-districts within the City, in order to help differentiate between potential station community locations.

IV. CHARACTERISTICS OF THE PRIMARY MARKET AREA

The characteristics of the households and employment in the market area form the key foundation for projecting demand for land uses, and thus growth into the future.

Demographics

The Primary Market Area had an estimated population of 47,595 residents in 2010, residing in 18,519 households. This is an average of 2.57 people per household. Figure 4.1 displays the past trends and projected trends for population and income in the PMA.

FIGURE 4.1: HOUSEHOLD & INCOME TRENDS, PRIMARY MARKET AREA

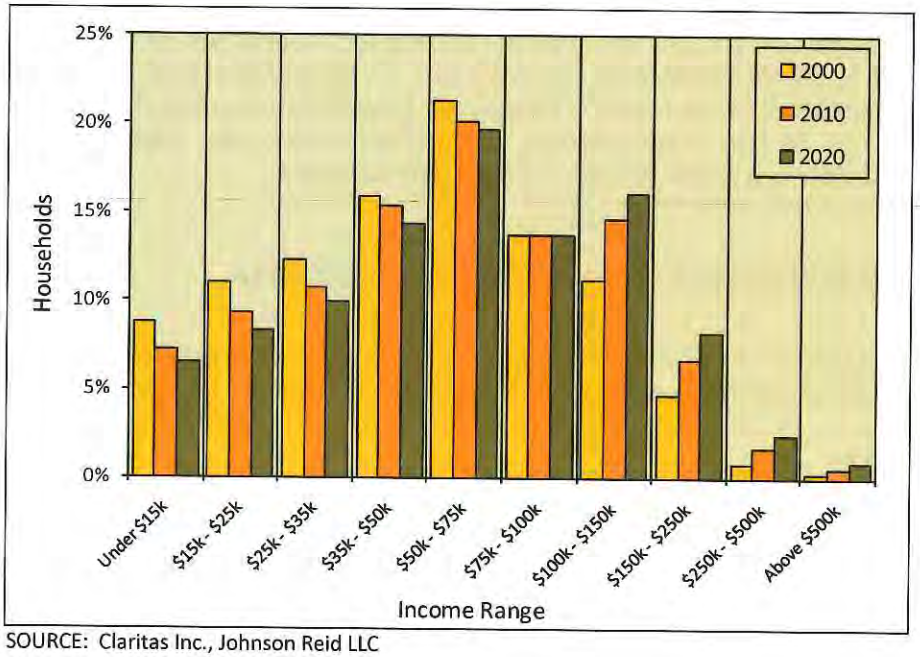
POPULATION, HOUSEHOLDS, FAMILIES, AND YEAR-ROUND HOUSING UNITS					
	2000 (Census)	2010 (Est.)	Growth Rate 00-10	2020 (Proj.)	Growth Rate 10-20
Population	41,223	47,595	1.4%	54,173	1.3%
Households	16,622	18,519	1.1%	21,244	1.0%
Household Size	2.48	2.57	0.4%	2.55	-0.8%
PER CAPITA AND AVERAGE HOUSEHOLD INCOME					
	2000 (Census)	2010 (Est.)	Growth Rate 00-10	2020 (Proj.)	Growth Rate 10-20
Per Capita ($)	25,110	31,342	2.2%	37,439	1.8%
Median HH ($)	51,581	63,554	2.1%	75,130	1.7%

SOURCE: PSU Population Research Center, Claritas Inc., Johnson Reid LLC

The PMA demonstrates trends in population and income growth that are positive for future demand. From 2000 to 2010, the population grew at an annual rate of 1.4%, basically equal to the growth rate of the Portland Metro region as a whole. The state grew at 1.1% per year during that period. In the next five years, the population in the PMA is expected to grow at a somewhat slower 1.3% annually.

The median household income, at $63,500 in 2010, is a higher in the market area compared to a median of roughly $50,000 statewide. The annual growth in the median income slightly slower than income growth in the region as a whole at 2.2% compared to 2.5%.

FIGURE 4.2: HOUSEHOLDS BY ANNUAL INCOME, PRIMARY MARKET AREA



SOURCE: Claritas Inc., Johnson Reid LLC

Figure 4.2 shows the distribution of households by annual income in 2000 and 2010, and projected to 2020. The figure shows a concentration of incomes on the lower half of the spectrum in 2000. The largest share of households are in the $50,000 to $75,000 per year range, though this cohort is shrinking in relation to the higher income cohorts as average incomes grow with inflation. While higher incomes are projected to become a greater share of the total, a bulk of households are expected to remain in the $35,000 to $150,000 range.

Employment

In 2005, there were just over 41,300 jobs in the City of Tigard, according to the City's soon to be completed Economic Opportunities Analysis, which drew data from Metro employment forecasts. This is roughly 17.5% of Washington County employment, despite having roughly 10% of the County population. By 2030, employment is expected to grow to 60,637. (See Figure 4.3.)

Tigard enjoys a high jobs-to-household ratio of roughly 2.3 jobs for each household. This implies that Tigard is an attractive place for employers to locate. This is particularly true in the Washington Square and Tigard Triangle areas, due to excellent regional access.

FIGURE 4.3: EMPLOYMENT TRENDS BY INDUSTRY
PRIMARY MARKET AREA, 2005 - 2030

Industry	2005	2030		Ann. Growth
	Employment	Employment	% of Total	2005 - 2030
TOTAL NONFARM EMPLOYMENT	41,308	60,637	100%	1.5%
Natural Resources	14	22	0%	1.8%
Construction	3,310	4,074	7%	0.8%
Manufacturing	3,216	3,509	6%	0.4%
Wholesale Trade	3,679	5,482	9%	1.6%
Retail Trade	7,027	9,754	16%	1.3%
Transportation, Warehousing, Utilities	1,042	1,384	2%	1.1%
Information	1,662	2,125	4%	1.0%
Financial Activities	5,567	7,225	12%	1.0%
Professional & Business Services	7,546	13,015	21%	2.2%
Educational & Health Services	3,901	7,524	12%	2.7%
Leisure & Hospitality	2,741	4,285	7%	1.8%
Other Services	1,225	1,684	3%	1.3%
Government	377	554	1%	1.5%

SOURCES: City of Tigard Economic Opportunities Analysis (2010), Metro adopted employment forecast, Oregon Employment Department, Johnson Reid LLC

As the table indicates, Professional and Business Services, and Retail represent the largest shares of employment in the city. Going forward, Professional Services, along with Education and Health Services are expected to grow the most quickly, increasing their share of overall employment by 2030.

The following table presents estimated employment in 2010 (44,499 jobs), based on the projection presented above, and breaks the growth into five year increments.

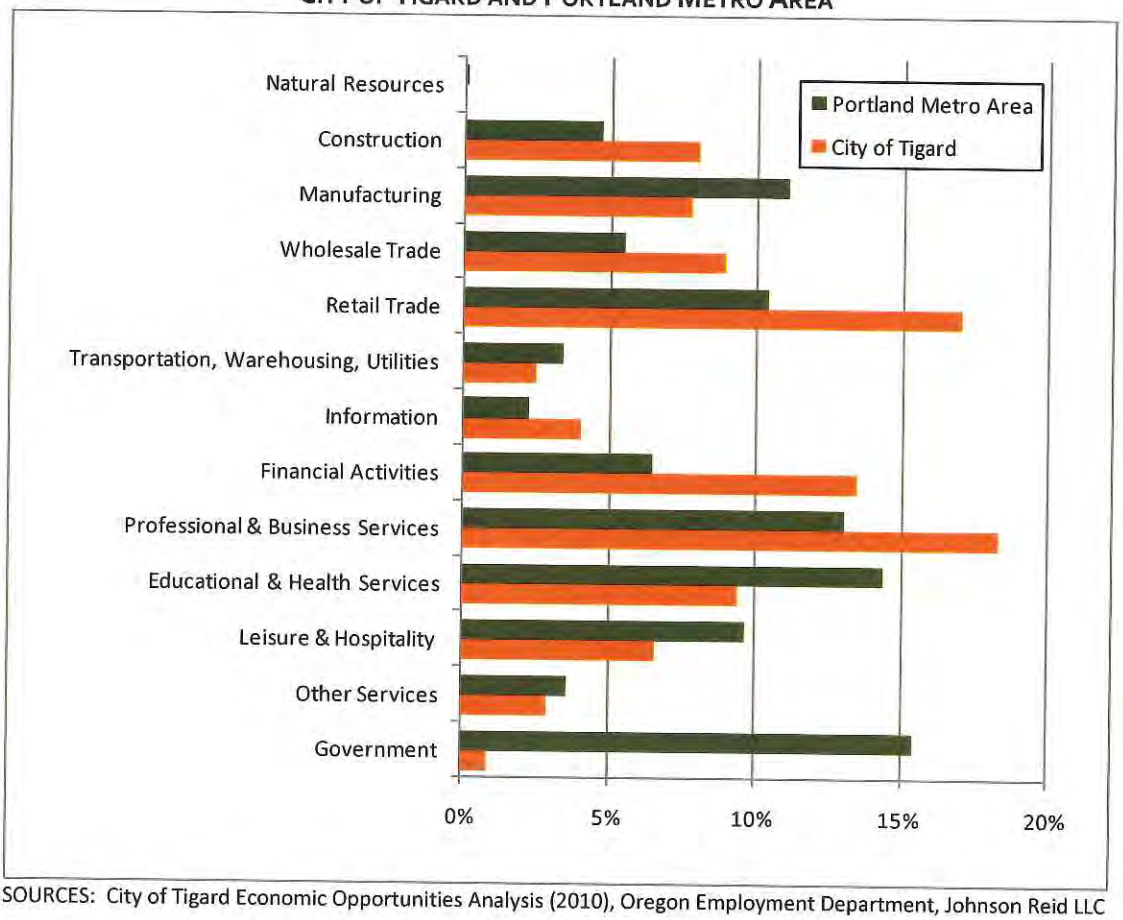
FIGURE 4.4: EMPLOYMENT FORECAST BY INDUSTRY
PRIMARY MARKET AREA, 2010 - 2030

City of Tigard	Projected Annual	Total Employment 1/					'10-'30
Employment Sector	Growth Rate[1]	2010	2015	2020	2025	2030	Change
Construction	0.8%	3,451	3,597	3,749	3,908	4,074	**624**
Manufacturing	0.4%	3,272	3,330	3,389	3,449	3,509	**237**
Wholesale Trade	1.6%	3,985	4,316	4,674	5,062	5,482	**1,498**
Retail Trade	1.3%	7,503	8,012	8,555	9,135	9,754	**2,251**
Transport., Warehousing, Utilities	1.1%	1,103	1,168	1,236	1,308	1,384	**281**
Information	1.0%	1,746	1,834	1,926	2,023	2,125	**379**
Financial Activities	1.0%	5,865	6,179	6,509	6,858	7,225	**1,359**
Professional & Business Services	2.2%	8,415	9,385	10,466	11,671	13,015	**4,600**
Education & Health Services	2.7%	4,448	5,073	5,785	6,598	7,524	**3,076**
Leisure & Hospitality	1.8%	2,997	3,277	3,584	3,919	4,285	**1,288**
Other Services	1.3%	1,306	1,391	1,483	1,580	1,684	**378**
Government	1.5%	407	440	475	513	554	**146**
Total	**1.6%**	**44,499**	**48,001**	**51,830**	**56,023**	**60,615**	**16,116**

SOURCES: City of Tigard Economic Opportunities Analysis (2010), Metro adopted employment forecast, Oregon Employment Department, Johnson Reid LLC

Figure 4.5 shows a comparison of the distribution of City of Tigard employment (in 2005) to the distribution in the Portland Metro area. Compared to the region, Tigard has a greater share of employment in Retail, Financial Services, and Professional Services, among other sectors. The region has a greater share of employment in Education and Health Services, Manufacturing and Government, among other sectors.

FIGURE 4.5: EMPLOYMENT COMPARISON
CITY OF TIGARD AND PORTLAND METRO AREA



SOURCES: City of Tigard Economic Opportunities Analysis (2010), Oregon Employment Department, Johnson Reid LLC

* * *

The following sections address each of the major land use types, and assess their feasibility in the THCTC Plan Area. These findings then inform a comparison of the relative strength of demand for the land uses, and compatibility with the plan area.

V. RESIDENTIAL MARKET CONDITIONS

The residential real estate market has experienced the greatest distortions over the last decade of the major categories of land use. In some national markets, the trend of rapidly increasing housing prices began as early as the late 1990's, and culminated in 2006. By that time, values had grown significantly, and the housing market was ridden with over-development, speculation, lax lending standards, and even outright fraud. Much of this activity was sustained by the assumption that real estate values always rise. Once valuations reached unsustainable levels beginning in 2005 and 2006, prices fell and problems cascaded across the country and the financial institutions.

In the Pacific Northwest, the housing "bubble" began late and did not grow as large. The pace of price increases did not begin accelerating until roughly 2004, well behind many national markets. Likewise, the Northwest didn't experience widespread price declines until 2007. According to the Case/Shiller index of housing values, the bubble in Northwest markets reached roughly half the size of the nationwide composite of 20 cities.

In the Portland Metro area and surrounding cities, prices have declined 25% to 30% from their peak. Despite a temporary rise bolstered by the federal homebuyer tax credit, the general trend seems to remain downward for the time being, though at a slower pace. Many experts forecast that pricing may fall a few percentage points further in 2011 before stabilizing and resume modest growth.

In the longer term, real estate development in all categories is expected to more closely respond to the underlying pressures of population and employment growth, rather than price speculation. Therefore there will be new development, but at a slower pace than that seen in the middle of this decade, with prices better reflecting fundamentals and ability of tenants and owners to pay.

For-Sale vs. Rental Housing

The impact of this sequence of events was to swing the residential real estate market from a state of rapid multi-year growth, to a state of very low production which has now lasted three years and counting. In the Portland area, the growth was almost all in the for-sale housing market between 2003 and 2007, leading to a significant oversupply of new housing and buildable lots once the market cooled.

However, the emphasis on development of for-sale housing led to a near freeze on multi-family rental properties, and therefore rental units were not oversupplied coming out of the housing boom. In addition, many former rental properties in the Portland Metro were fixed up and sold, or converted to condominiums, to take advantage the hot market.

Production of for-sale housing has slowed considerably, and supply is slowly being drawn down. When strong economic growth returns, remaining supply is likely to go rather quickly, and new development will resume.

Since 2008, some production of rental housing has resumed, and existing rentals represent one of the strongest real estate categories during the downturn as they provide steady cash

flow. Financing is still difficult to obtain as lenders resist re-exposing themselves to the real estate market.

A. Residential Supply Summary

Figure 5.1 summarizes for-sale inventory statistics in the Primary Market Area for the year 2010. In the past year, the city has experienced over 526 home sales, at a median sale price of roughly $280,000.

FIGURE 5.1: INVENTORY STATISTICS
PRIMARY MARKET AREA, 2010

TIGARD, OREGON	
Total Annual Sales:	526
Average Monthly Sales:	43.8
Median Sale Price:	$280,000
Median Price/SF:	$137
Average Sale Price:	$300,600
Average Price/SF:	$135
Active Homes Available:	305
Median List Price:	$300,000
Overall Inventory/Months:	7.0

Source: RMLS, Johnson Reid LLC

Based on the sales velocity of the previous year, the current number of active listings amount to an estimated 7 month housing inventory. This amount of inventory is actually near healthy levels, demonstrating that Tigard does not suffer the large oversupply that some Metro-area jurisdictions are experiencing.

Figure 5.2 displays the residential housing permits issued from 1990 to 2010 in Tigard and Washington County. Tigard represents 10.2% of the units permitted in Washington County over that period. Of the units permitted in Tigard, 78% were single family and 22% were multi-family.

The low production of new units in recent years is apparent in these statistics, as production of single family units dropped by almost 75% between 2007 and 2008. On average, 294 single-family units, and 82 multi-family units were produced each year over this 20-year period.

FIGURE 5.2: RESIDENTIAL BUILDING PERMITS

Year	Permitted Single-Family Units		Permitted Multi-Family Units	
	Tigard	Washington Co.	Tigard	Washington Co.
1990	303	3062	287	303
1991	174	2095	2	174
1992	298	2606	0	298
1993	451	3263	298	451
1994	344	3274	108	344
1995	329	3786	164	329
1996	353	4085	499	353
1997	296	3442	154	296
1998	354	3677	24	354
1999	364	3267	0	364
2000	403	3229	0	403
2001	504	3205	0	504
2002	340	3168	0	340
2003	380	3104	0	380
2004	276	3377	108	276
2005	344	3808	6	344
2006	262	2773	20	262
2007	198	2144	0	198
2008	52	1149	0	52
2009	44	871	0	44
2010*	95	969	50	224
Totals:	***6,164***	***60,354***	***1,720***	***6,293***

SOURCE: Census Bureau, and JOHNSON REID LLC

B. Residential Demand Projections

JOHNSON REID uses a residential model that calculates demand for new ownership and rental housing based on the income level, age, and growth profiles of the market area. The profile of probable owners vs. renters is derived from Census data for the area. In general, those in younger age cohorts and with lower income are likely to rent units, while older households and those with higher income are more likely to own their homes.

Ownership housing

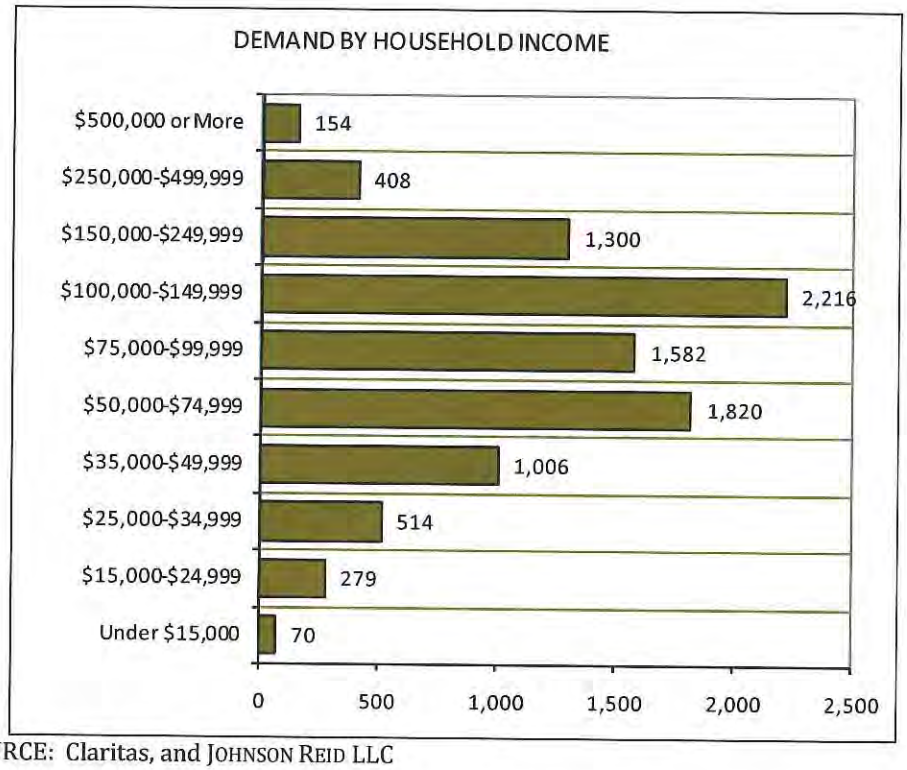
The demand for for-sale units in the competitive market area is the biggest driver of the housing market in a suburban market. For-Sale demand is the result of two factors:

Structural Demand: Net new demand resulting from the addition of new households to the area, due to standard economic growth. Structural demand encompasses households entering the area due to gradual expansions in regional employment and population.

Turnover Demand: Annual sales as a result of the normal turnover of existing households relocating within the PMA.

Figure 5.3 shows the total 20-year demand for for-sale units resulting from these two components distributed by income group.

FIGURE 5.3
TOTAL DEMAND FOR OWNERSHIP UNITS, 2010 – 2030
PRIMARY MARKET AREA



SOURCE: Claritas, and JOHNSON REID LLC

- Figure 5.3 displays a total 20-year demand for roughly 9,350 ownership units. This demand will be met by both new *and existing* units.

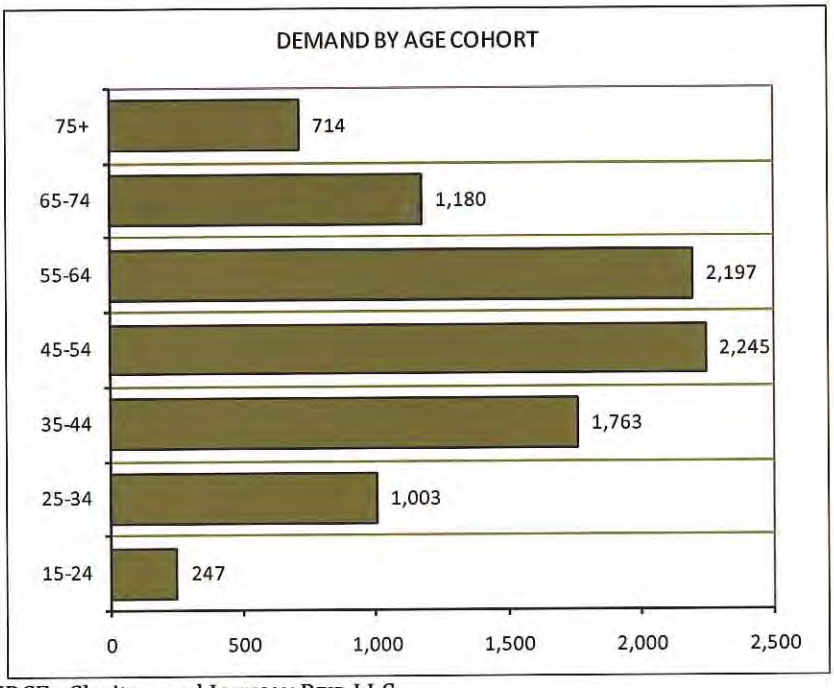
- Of these, there is a projected structural demand from in-migrating households for over 3,700 ownership units. This represents demand from *net new* households to the area, and is a better proxy for the number of new units demanded.

- Households making between $100,000 and $149,000 per year represent the single largest block of demand (24% of total). If the three income cohorts

earning between $50,000 and $149,000 are combined they represent 60% of the total demand.

Figure 5.4 shows the same demand for ownership units distributed by age cohort.

FIGURE 5.4
TOTAL DEMAND FOR OWNERSHIP UNITS, 2010 – 2030
PRIMARY MARKET AREA



SOURCE: Claritas, and JOHNSON REID LLC

- In general the five year demand for ownership housing is fairly evenly spread across those age groups from 35 to 65.

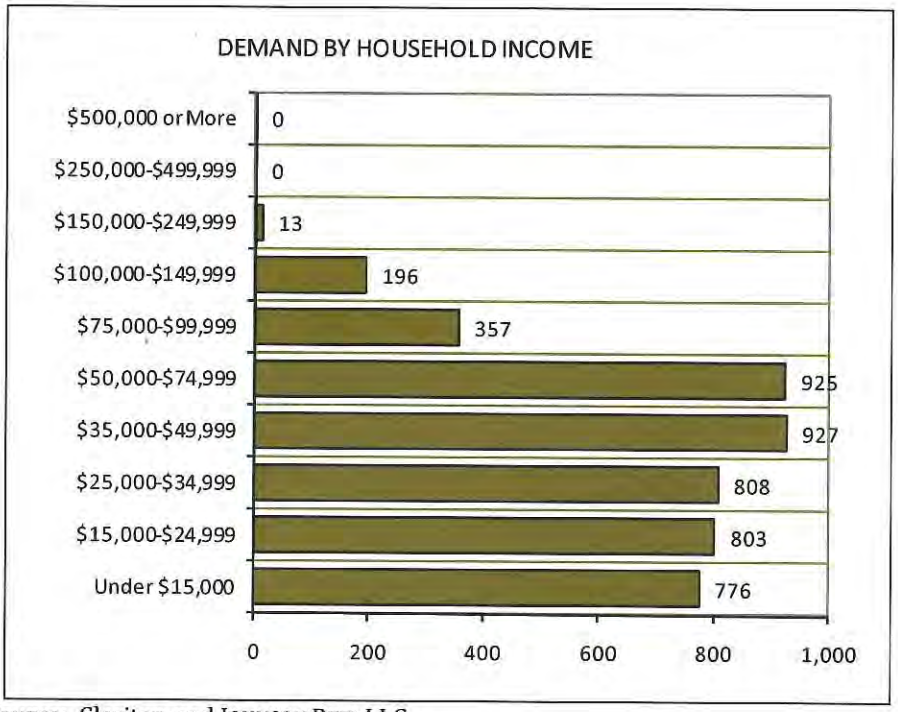
Rental housing

The same factors of growth, age and income will drive the demand for rental housing as well.

- Figure 5.5 displays a total 20-year demand for 4,800 rental units. A majority of demand is from those households earning less than $75,000 per year.

- This projection also shows a significant amount of demand for rentals from those earning more than $50,000. This is based on the general propensities to own vs. rent in the market area in the 2000 Census. Be aware, that this system can overstate the demand for rental units from households in higher income brackets, which tend to own rather than rent.

FIGURE 5.5
TOTAL DEMAND FOR RENTAL UNITS, 2010 – 2030
PRIMARY MARKET AREA

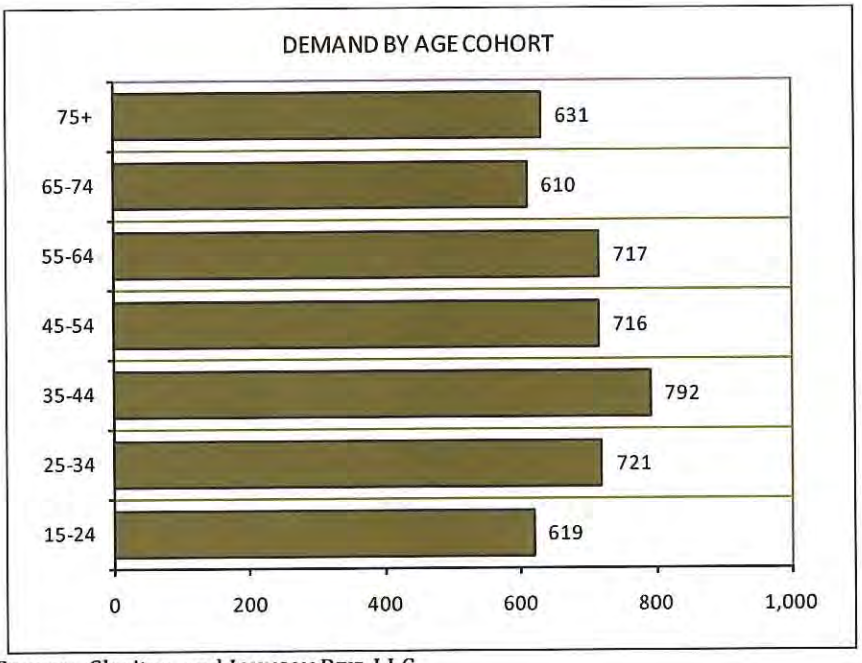


Source: Claritas, and JOHNSON REID LLC

- Our analysis finds a projected structural demand from in-migrating households for 1,180 rental units, which best represents the need for new units going forward.

Figure 5.6 shows the total demand for rental units by age cohort. Demand is fairly well distributed across the age spectrum as renting is more closely correlated to income than age.

FIGURE 5.6
TOTAL DEMAND FOR RENTAL UNITS, 2010 – 2030
PRIMARY MARKET AREA



Source: Claritas, and JOHNSON REID LLC

Housing Demand Conclusions

Structural demand, representing net new households in the area, is the best indicator of demand for *new* housing, as opposed to existing housing. For the purposes of planning in a new Plan Area, this is the key metric. Based on the above findings we find the following 20-year demand for new housing units:

- 3,715 ownership housing units, mostly single-family
- 1,180 rental units, mostly multi-family

Demand for Detached vs. Attached Units

The following table shows permits issued for new housing units in Tigard since 1990, according to HUD's State of the Cities Data Systems (SOCDS). It shows that 78% of permitted units have been single family, while 22% have been multi-family. This is a greater percentage of multi-family units than seen in Washington County as a whole (9%).

FIGURE 5.7
PERMITTED HOUSING UNITS
CITY OF TIGARD, AND WASHINGTON COUNTY

Year	Permitted Single-Family Units		Permitted Multi-Family Units	
	Tigard	Washington Co.	Tigard	Washington Co.
1990	303	3062	287	303
1991	174	2095	2	174
1992	298	2606	0	298
1993	451	3263	298	451
1994	344	3274	108	344
1995	329	3786	164	329
1996	353	4085	499	353
1997	296	3442	154	296
1998	354	3677	24	354
1999	364	3267	0	364
2000	403	3229	0	403
2001	504	3205	0	504
2002	340	3168	0	340
2003	380	3104	0	380
2004	276	3377	108	276
2005	344	3808	6	344
2006	262	2773	20	262
2007	198	2144	0	198
2008	52	1149	0	52
2009	44	871	0	44
2010	95	969	50	224
Totals:	***6,164***	***60,354***	***1,720***	***6,293***
% of Total:	***78%***	***91%***	***22%***	***9%***

Source: HUD SOCDS

Tigard experienced years of multi-family development in the late 1990's, but relatively little over the last decade. These multi-family units *include both rental and attached ownership units.* The ratio of which is unclear, however in Portland Metro suburban markets all forms of attached housing have been fairly rare until the last decade.

The composition of future demand is hard to gauge, other than to predict that most ownership demand will continue to be for single-family detached homes, and most rental product will be multi-family in form.

Some argue that there may be greater demand for attached ownership housing in the future driven by demographic changes and a trend of "returning" to a more urban environment. The impact of these trends on actual demand for attached units has not been satisfactorily quantified.

In a suburban environment, this trend faces two obstacles that must be overcome by good planning and design. First, is that fact that many households locate in the suburbs specifically to find single-family housing that is more affordable and/or larger than that found in the central city. Second is the fact that units in newly constructed attached housing are expensive enough to develop that it is difficult for them to compete on price with single family homes available in the area.

Nevertheless, there should be sufficient rental demand, and a segment of ownership demand, for attached products to make these forms viable in a limited number of station communities.

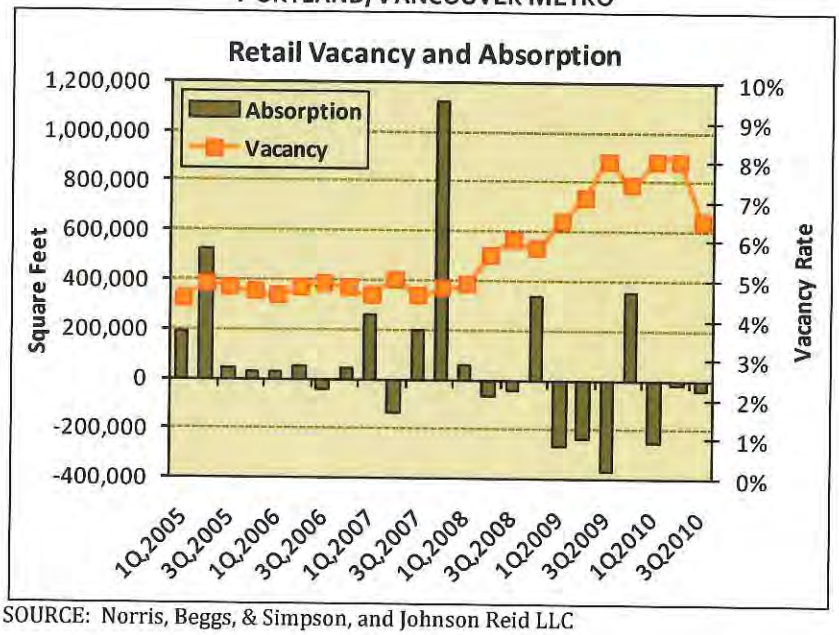
VI. RETAIL & COMMERCIAL MARKET CONDITIONS

Retail space has also faced challenges in recent years, nationally and regionally, as economic conditions and strained household finances led to a drop in discretionary spending beginning in 2007. 2009 was a very difficult year for retailers, with many national chains declaring bankruptcy, consolidating and/or closing stores.

In 2010, consumer spending has leveled off and is beginning to show slight growth. Retail hiring has also picked up this year, signaling that retailers are anticipating more spending growth. These trends signal that the challenging retail environment is near the bottom, but the strength and pace of recovery remain to be seen.

In the Portland Metro area, overall retail vacancy climbed from around 5% in the 2006/2007 timeframe, to 8% in 2009 and 2010. Vacancy jumped 2% in 2009 alone. Overall vacancy of 8% is still relatively healthy considering the severe recession. Helping to shield the blow is the fact that Oregon is historically somewhat under-built with retail space. Lack of a sales tax reduces incentives for jurisdictions to zone for and approve retail development, whereas in other states, large retail developments are often actively courted for the sales tax revenue they provide.

FIGURE 6.1: ABSORPTION AND VACANCY
PORTLAND/VANCOUVER METRO



SOURCE: Norris, Beggs, & Simpson, and Johnson Reid LLC

"Absorption" reflects the net square footage of space which is either leased, or vacated in the market during the indicated quarter. Positive absorption means that space is being filled, while negative absorption means that more space was vacated then leased.

Currently, retail in the suburban submarkets is faring somewhat better than central Portland. The Central City is experiencing the highest vacancy at 9.3%. The Southwest submarket, which includes Tigard, Sherwood, Wilsonville and surrounding areas, is faring somewhat better with vacancy of 5.4%. (Norris, Beggs and Simpson reports a significant decrease in retail vacancy between the 2nd Quarter and 3rd Quarter of 2010. The cause of this dramatic drop is unclear but may have to do with the design of the property survey used. We advise caution in interpreting this one quarter trend as a large sustained drop in retail vacancies.)

FIGURE 6.2: RETAIL MARKET CONDITIONS
PORTLAND/VANCOUVER METRO SUBMARKETS, 3RD QUARTER 2010

Submarkets	Inventory (sq.ft.)	Available (sq.ft.)	% Vacant	Under Const. (sq.ft.)
Portland/Vancouver Metro Submarkets				
122nd/Gresham	5,667,348	415,797	7.3%	0
Central City	2,280,464	211,190	9.3%	0
Southeast/E.Clackamas	5,516,056	324,722	5.9%	0
Eastside	5,791,160	258,618	4.5%	13,626
Sunset Corridor	5,183,806	300,844	5.8%	0
Southwest	10,826,394	584,673	5.4%	215,000
Vancouver	**8,926,329**	**788,493**	**8.8%**	**7,650**
Total:	***44,191,557***	***2,884,337***	***6.5%***	***236,276***

Source: Norris, Beggs, & Simpson, and Johnson Reid LLC.

Retail space construction has fallen over the last few years. Low levels of construction reflect the current retail conditions, increased availability of existing space, and difficulty in obtaining financing for new development.

Retail Rents

After rising in 2006 to 2007, retail rents began to fall in 2008, and most significantly in 2009, with asking rents falling 4%, and effective rents fell 6%. Concessions totaled 13.7% of the asking rents in 2009, as retailers sought relief and property owners worked to keep tenants (Marcus & Millichap). Consumer demand and rents both stabilized in 2010, but remain below pre-recessionary levels.

A. Retail Demand Projections

By combining data on spending per PMA household with projected growth rate for those households, we arrive at projections of future spending and retail space demand. JOHNSON REID has projected household spending based on the annual projected household growth rate of 1.0% presented in Figure 4.1.

FIGURE 6.3: HOUSEHOLD SPENDING PROJECTIONS, 2010 TO 2030
CITY OF TIGARD

Spending Growth Scenario [1/]			Retail Spending in Millions (Households)					
NAIC	Category	Per Household Expenditures	2010	2015	2020	2025	2030	10-'30 Change
			18,519	*19,443*	*20,413*	*21,430*	*22,499*	*3,980*
441	Automotive Parts, Accessories and Tire Stores	$7,999	$148.1	$155.5	$163.3	$171.4	$180.0	$31.8
442	Furniture and Home Furnishings Stores	$1,082	$20.0	$21.0	$22.1	$23.2	$24.3	$4.3
443	Electronics and Appliance Stores	$1,040	$19.3	$20.2	$21.2	$22.3	$23.4	$4.1
444	Building Materials and Garden Equipment	$4,401	$81.5	$85.6	$89.8	$94.3	$99.0	$17.5
445	Food and Beverage Stores	$5,002	$92.6	$97.3	$102.1	$107.2	$112.5	$19.9
446	Health and Personal Care Stores	$1,894	$35.1	$36.8	$38.7	$40.6	$42.6	$7.5
448	Clothing and Clothing Accessories Stores	$1,998	$37.0	$38.9	$40.8	$42.8	$45.0	$8.0
451	Sporting Goods, Hobby, Book and Music Stores	$873	$16.2	$17.0	$17.8	$18.7	$19.6	$3.5
452	General Merchandise Stores	$5,034	$93.2	$97.9	$102.8	$107.9	$113.3	$20.0
453	Miscellaneous Store Retailers	$1,101	$20.4	$21.4	$22.5	$23.6	$24.8	$4.4
722	Foodservices and Drinking Places	$4,092	$75.8	$79.6	$83.5	$87.7	$92.1	$16.3
	Totals:	**$34,517**	**$639.2**	**$671.1**	**$704.6**	**$739.7**	**$776.6**	**$137.4**

1/ Growth scenario based on 1.0% household growth projection (Figure 5.1)
SOURCE: Claritas Inc., and JOHNSON REID LLC

FIGURE 6.4: SPENDING PROJECTIONS, CONVERTED TO RETAIL SPACE DEMAND
CITY OF TIGARD

Retail Space Growth Scenario		Sales Support	Retail Space Need - Existing and New (SF) [2]					
NAICS	Category	Factor [1]	2010	2015	2020	2025	2030	10-'30 Change
441	Automotive Parts, Accessories and Tire Stores	$175	930,251	976,641	1,025,343	1,076,475	1,130,156	146,223
442	Furniture and Home Furnishings Stores	$218	101,092	106,133	111,425	116,982	122,815	15,890
443	Electronics and Appliance Stores	$252	84,030	88,220	92,620	97,238	102,087	13,208
444	Building Materials and Garden Equipment	$161	555,760	583,474	612,571	643,118	675,189	87,358
445	Food and Beverage Stores	$393	259,168	272,092	285,660	299,906	314,861	40,738
446	Health and Personal Care Stores	$290	133,110	139,748	146,716	154,033	161,714	20,923
448	Clothing and Clothing Accessories Stores	$273	148,862	156,286	164,079	172,262	180,852	23,399
451	Sporting Goods, Hobby, Book and Music Stores	$246	72,388	75,997	79,787	83,766	87,943	11,378
452	General Merchandise Stores	$175	585,438	614,632	645,282	677,461	711,244	92,023
453	Miscellaneous Store Retailers	$242	92,684	97,306	102,158	107,252	112,601	14,569
722	Foodservices and Drinking Places	$297	280,263	294,239	308,912	324,316	340,489	44,054
	Total Retail Space Demand based on Total Spending:		**3,243,000**	**3,404,800**	**3,574,600**	**3,752,800**	**3,940,000**	**509,800**

[1] Based on national averages derived from "Dollars & Cents of Shopping Centers," Urban Land Institute, 2008, adjusted to 2010 dollars. The sales support factor is the average amount of spending per square foot which occurs in each category. It is used to convert the amount of local spending, into the amount of space that spending would support on average.

[2] Assumes a market-clearing retail space vacancy rate of 10%.

SOURCE: Claritas Inc., and JOHNSON REID LLC

Figure 6.4 translates the spending projections into the equivalent amount of retail space. The growth scenario projects that spending by market area households will translate into a need for roughly 500,000 square feet of additional retail space, over the next 20 years. Not all of this new demand will be captured within the Primary Market Area.

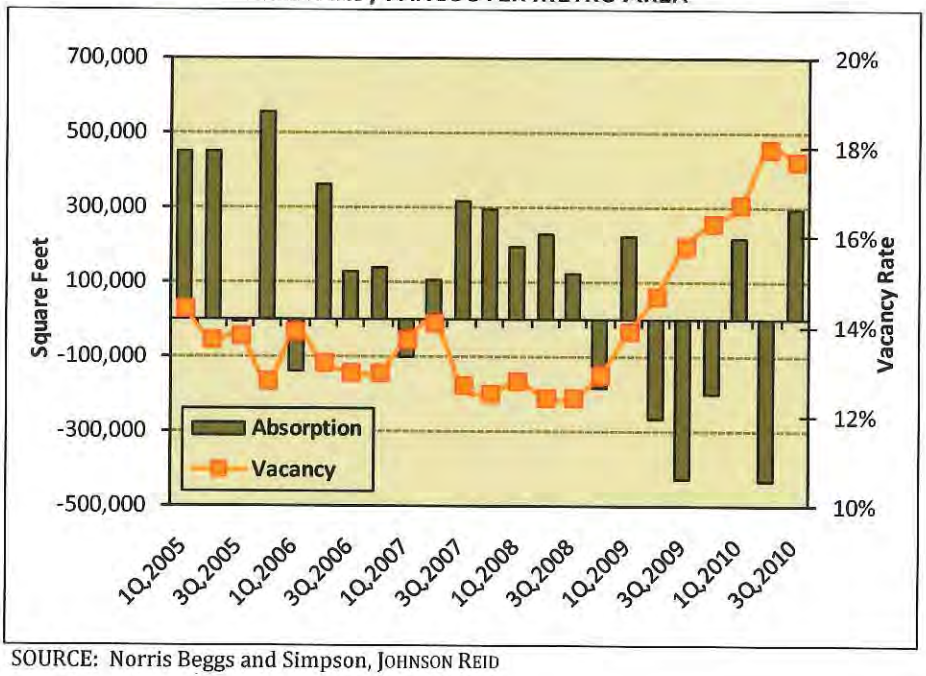
VII. OFFICE MARKET CONDITIONS

Recently, the office market has been challenged by the slow economy. While commercial property came briefly into favor as housing lost value, this trend didn't last as the worsening economy led to lower employment and thus less need for office space. The real estate industry is currently working its way through a period of uncertainty, slowly establishing new price levels, new lending standards and new expectations for the coming years.

The office market in the Tigard Primary Market Area is driven first and foremost by local employment trends, and job growth in industries which use office space. However, trends in the broader Portland Metro area where more accurate data is available can illuminate some trends and give some indicator of current conditions.

As the following figure demonstrates, the Portland Metro area experienced regular positive absorption (leasing of space) between 2005 and the end of 2008. Additions to office supply were fairly modest in most quarters, as development activity was focused on residential product from 2003 to 2007. There has been mostly negative office absorption over 2009 and 2010, with some quarters of positive absorption.

FIGURE 7.1
OFFICE ABSORPTION AND VACANCY
PORTLAND/VANCOUVER METRO AREA



SOURCE: Norris Beggs and Simpson, JOHNSON REID

Vacancy

Vacancy hovered between 12% and 14% for many years, before beginning an upswing at the end of 2008. Metro-area office vacancy rose over 4% in little more than a year. Average vacancy peaked at over 18% in mid-2010, but improved slightly during the second half of the year.

Performance for office properties has differed significantly depending on the submarket (Figure 7.2). The Central City maintains the lowest vacancy rate, and continues to see some construction, though some of this has stalled – most notably the Park Avenue West tower in Downtown.

FIGURE 7.2
OFFICE MARKET CONDITIONS
PORTLAND METRO SUBMARKETS, 3Q 2010

Selected Submarkets	Inventory (sq.ft.)	Available (sq.ft.)	% Vacant	Under Const. (sq.ft.)
Central City	20,092,810	2,437,530	12.1%	398,425
Sunset Corridor	3,709,629	935,291	25.2%	0
Central 217	1,589,338	395,929	24.9%	0
Tigard Triangle / South 217	1,158,346	264,521	22.8%	0
Barbur Blvd.	496,357	99,161	20.0%	0
Beaverton-Hillsale/Sylvan	712,526	141,536	19.9%	0
Central Beaverton	682,033	140,631	20.6%	0
I-5 South	2,074,273	607,259	29.3%	70,020
SW Waterfront/Johns Lndg.	1,060,941	232,816	21.9%	0
Kruse Way	2,364,662	707,443	29.9%	0
Lake Oswego/West Linn	468,752	75,657	16.1%	0
North/Northeast	919,883	225,303	24.5%	238,200
Central 205	1,318,388	235,496	17.9%	0
Southeast	508,943	44,824	8.8%	0
Vancouver	3,956,634	724,727	18.3%	0
All suburban markets:	**21,020,705**	**4,830,594**	**23.0%**	**308,220**

SOURCE: Norris Beggs and Simpson, JOHNSON REID

In contrast, many suburban markets are experiencing office vacancy high above the average. While third quarter vacancy averaged 17.7% in the region including the CBD, in submarkets outside the central city, vacancy averaged above 23%.

The highest vacancy tends to be found in western and southwestern submarkets, nearest the market area. The "Tigard Triangle/South 217" submarket is experiencing vacancy of 23%, the suburban average.

Overall, there is little current construction of office space in the Metro area. This reflects the economy, current office vacancies, and the difficulty of the lending environment. With vacancy rates as high as they are, sustained employment growth will have to return before significant new office development will be undertaken.

A. Office Demand Projections

Projections of office demand into the future are based on estimated employment growth. Based on total employment projected by industry category, this model estimates the number of those jobs that will require an office environment. Using estimates of the average square footage per employee for different industries, we arrive at an estimate of the new office space required to accommodate the job growth.

FIGURE 7.3: PROJECTED EMPLOYMENT IN THE PRIMARY MARKET AREA

City of Tigard	Projected Annual	Total Employment 1/					'10-'30
Employment Sector	Growth Rate[1]	2010	2015	2020	2025	2030	Change
Construction	0.8%	3,451	3,597	3,749	3,908	4,074	**624**
Manufacturing	0.4%	3,272	3,330	3,389	3,449	3,509	**237**
Wholesale Trade	1.6%	3,985	4,316	4,674	5,062	5,482	**1,498**
Retail Trade	1.3%	7,503	8,012	8,555	9,135	9,754	**2,251**
Transport., Warehousing, Utilities	1.1%	1,103	1,168	1,236	1,308	1,384	**281**
Information	1.0%	1,746	1,834	1,926	2,023	2,125	**379**
Financial Activities	1.0%	5,865	6,179	6,509	6,858	7,225	**1,359**
Professional & Business Services	2.2%	8,415	9,385	10,466	11,671	13,015	**4,600**
Education & Health Services	2.7%	4,448	5,073	5,785	6,598	7,524	**3,076**
Leisure & Hospitality	1.8%	2,997	3,277	3,584	3,919	4,285	**1,288**
Other Services	1.3%	1,306	1,391	1,483	1,580	1,684	**378**
Government	1.5%	407	440	475	513	554	**146**
Total	**1.5%**	**44,499**	**48,001**	**51,830**	**56,023**	**60,615**	**16,116**

SOURCES: City of Tigard Economic Opportunities Analysis (2010), Metro adopted employment forecast, Oregon Employment Department, Johnson Reid LLC

Figure 7.3 presents the projected employment in the Primary Market Area, across the industry classifications, from 2010 to 2030. These projections are based on the Economic Opportunities Analysis prepared in 2010 by the City of Tigard. This data also reflects Metro employment forecasts generated for the recent Urban Growth Report process. As discussed in Section IV of this report, the current estimated employment is roughly 44,499 jobs.

Over 16,100 new jobs are forecasted over the 20-year period, representing growth of 36% over the 2010 level. This amounts to average growth of 1.5% per year.

Figure 7.4 below demonstrates the estimated amount of office-based employment resulting from this growth in overall employment. Different industry sectors use office space to differing degrees. For instance, employees in the construction industry use relatively little office space, while employees in the professional sector primarily use office space. Of the 16,116 projected new jobs, 7,900 (or 49%)of them are projected to be office jobs.

FIGURE 7.4: PROJECTED OFFICE EMPLOYMENT
PRIMARY MARKET AREA

City of Tigard	Office Share[2/3]	Office Employment				
Employment Categories		2010	2015	2020	2025	2030
Construction	2%	69	72	75	78	81
Manufacturing	5%	164	167	169	172	175
Wholesale Trade	5%	199	216	234	253	274
Retail Trade	5%	375	401	428	457	488
Transportation, Warehousing, Utilities	30%	331	350	371	392	415
Information	90%	1,571	1,650	1,733	1,821	1,912
Financial Activities	90%	5,279	5,561	5,859	6,172	6,502
Professional & Business Services	90%	7,574	8,446	9,419	10,504	11,714
Educational & Health Care Services	40%	1,779	2,029	2,314	2,639	3,010
Leisure & Hospitality	40%	1,199	1,311	1,433	1,568	1,714
Other Services	40%	522	557	593	632	673
Government	35%	143	154	166	179	194
Totals (Rounded Estimates):		*19,200*	*20,910*	*22,790*	*24,870*	*27,150*

2/ Office Share is the estimated percentage of the total employment in that category that is done in an office setting.
3/ Office Share and Square Footage based on Urban Land Institute estimates, converted to N.A.I.C.S. by Johnson Reid LLC
Sources: U.S. Census, Oregon Employment Department, Urban Land Institute, Johnson Reid LLC

The following figure translates the above projections into the need for office space. The new projected office employment translates to a need of over 1,590,000 square feet of new office space over the next 20 years.

This projection falls within the range identified in the Tigard's recent Economic Opportunities Analysis (EOA). The EOA identified the need for between 1,499,000 and 2,497,000 square feet of office s space over 20 years. The projection presented below is near the lower end of this range.

FIGURE 7.5: PROJECTED OFFICE SPACE DEMAND
PRIMARY MARKET AREA

City of Tigard	Sq. Ft./ Emp[3]	Estimated Office Demand (1000's of Sq.Ft.)					20-yr Change ('10-'30)	
Employment Categories		2010	2015	2020	2025	2030	New Office Emp.	New Space Demand (sf)
Construction	225	15.5	16.2	16.9	17.6	18.3	12	2,806
Manufacturing	200	32.7	33.3	33.9	34.5	35.1	12	2,369
Wholesale Trade	200	39.8	43.2	46.7	50.6	54.8	75	14,976
Retail Trade	200	75.0	80.1	85.5	91.3	97.5	113	22,506
Transportation, Warehousing, Utilities	225	74.5	78.8	83.4	88.3	93.5	84	18,980
Information	200	314.2	330.1	346.7	364.1	382.5	341	68,221
Financial Activities	200	1,055.7	1,112.2	1,171.7	1,234.4	1,300.4	1,223	244,678
Professional & Business Services	200	1,514.8	1,689.2	1,883.8	2,100.8	2,342.8	4,140	827,997
Educational & Health Care Services	200	355.9	405.8	462.8	527.8	601.9	1,230	246,043
Leisure & Hospitality	200	239.8	262.2	286.7	313.5	342.8	515	103,073
Other Services	200	104.5	111.3	118.6	126.4	134.7	151	30,242
Government	200	28.5	30.8	33.2	35.9	38.8	51	10,237
Totals (Rounded Estimates):		*3,850.9*	*4,193.2*	*4,570.0*	*4,985.2*	*5,443.1*	*7,900*	*1,592,100*

3/ Office Share and Square Footage based on Urban Land Institute estimates, converted to N.A.I.C.S. by Johnson Reid LLC
Sources: U.S. Census, Oregon Employment Department, Urban Land Institute, Johnson Reid LLC

VIII. INDUSTRIAL MARKET CONDITIONS

The industrial market in the Portland Metro area is currently facing some of the same difficulties as the office market as both are impacted by a down economy and loss of employment. Despite a long-term national trend of shrinking in the manufacturing sector, manufacturing remains strong in the Portland Metro area relative to other regions. In Tigard, manufacturing represents roughly 10% of employment and has been declining slowly, as in most markets (see Section V above.)

Between 2000 and 2003, during the high-tech recession, vacancy climbed from under 7% to roughly 18%. From there the vacancy fell as the economy improved, falling below 9% in 2007. Since that time, however, vacancy has climbed again, increasing by almost 6% in two years.

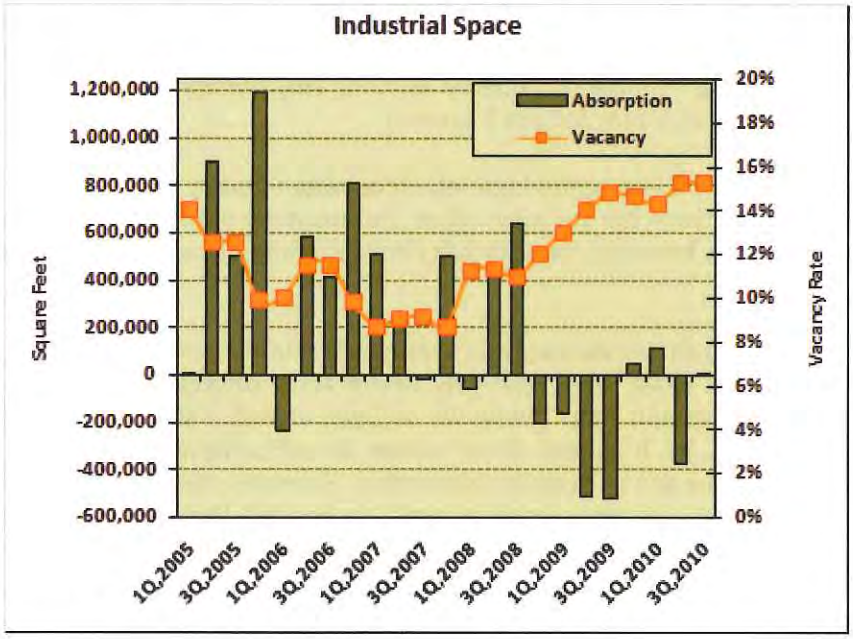
Figure 8.1 (next page) shows vacancy and absorption rates for industrial and "flex space" in the Metro area. "Flex space" is a relatively newer term referring to space which shares aspects of office space and light industrial or light manufacturing space. Flex space is sometimes preferred by high-tech firms which do office-based research and business operations on the same site as product fabrication. However, because this space is flexible, it is often used for just a single purpose as well. In general, the vacancy rate in traditional industrial space (15.2%) has remained well below the vacancy rate of vacancy in flex space (18.9%).

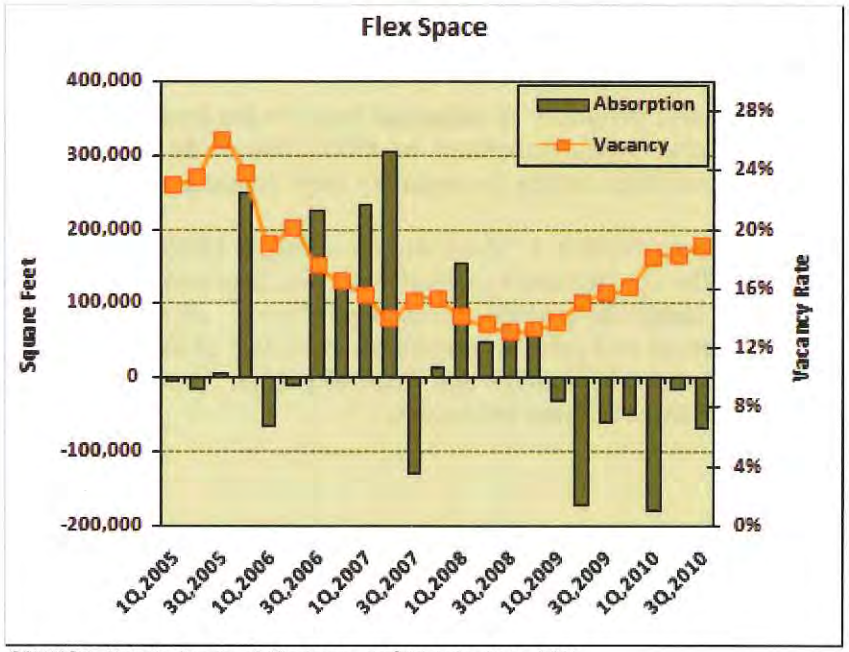
Absorption (net leasing of space) remained strongly positive for most of the period between 2005 and mid-2008, but has been negative ever since (net vacating of space). Flex space experienced spottier, but generally positive absorption.

The latest comprehensive inventory of industrial lands in the Portland Metro area was the Regional Industrial Land Study completed in 1999. The study found a lack of vacant, unconstrained industrial lands across the region to meet demand over the next 20 years.

Norris, Beggs, & Simpson reports a "short supply of large, 100,000 sf spaces" across the entire Metro region. The constrained supply of industrial land and fragmentation of current parcels make larger industrial parcels increasingly scarce. Developers are increasingly looking for redevelopment and infill opportunities. However, as these types of property are generally more expensive to purchase and redevelop than "green field" sites, industrial developers often avoid them without incentives.

FIGURE 8.1: VACANCY AND ABSORPTION
TRADITIONAL INDUSTRIAL AND FLEX SPACE
PORTLAND METRO AREA, 2005 - 2010





SOURCE: Norris, Beggs, & Simpson, and JOHNSON REID, LLC.

Figure 8.2 displays trends in Metro area submarkets. The Primary Market Area is nearest to the Southwest 217 and Southwest I-5 submarkets. The 217 submarket is experiencing higher than average industrial vacancy 25%, while the Southwest I-5 submarket is experiencing lower than average vacancy.

FIGURE 8.2: SUBMARKET TRENDS

	Industrial Space				Flex Space				Totals	
Selected Submarkets	Inventory (sq.ft.)	Available (sq.ft.)	% Vacant	Under Const.	Inventory (sq.ft.)	Available (sq.ft.)	% Vacant	Under Const.	Total Inventory	Total Vacancy
North/Northeast	20,843,897	3,526,774	16.9%	0	569,462	80,136	14.1%	0	21,413,359	16.8%
Northwest	1,477,860	124,077	8.4%	0	n/a	n/a	n/a	0	1,477,860	8.4%
Southeast	6,459,788	955,998	14.8%	0	263,229	31,137	11.8%	0	6,723,017	21.7%
Southwest 217	2,684,302	659,870	24.6%	0	2,932,650	502,361	17.1%	0	5,616,952	14.6%
Southwest I-5	8,790,119	1,053,609	12.0%	0	1,059,645	158,670	15.0%	0	9,849,764	21.5%
Sunset Corridor	3,122,351	228,004	7.3%	0	4,932,172	1,064,058	21.6%	0	8,054,523	4.8%
Vancouver	8,123,228	1,292,434	15.9%	0	802,080	155,760	19.4%	0	8,925,308	16.2%
Total Industrial space:	**51,501,545**	**7,840,766**	**15.2%**	**0**	**10,559,238**	**1,992,122**	**18.9%**	**0**	**62,060,783**	**15.8%**

Sources: Norris, Beggs, & Simpson, and JOHNSON REID, LLC.

As with the office market, there is currently little new industrial space under construction.

A. Industrial Demand Projections

As with office demand, projections of industrial demand into the future are based on the expected employment growth in the area. Based on projections of employment growth by industry category, we estimate the number of those jobs that will take place in an industrial environment. Using estimates of the average square footage per employee for different industries, we arrive at an estimate of the new industrial space required to accommodate the job growth.

JOHNSON REID'S total projected demand within the Primary Market Area is presented again below for reference.

FIGURE 8.3: PROJECTED EMPLOYMENT IN THE PRIMARY MARKET AREA

City of Tigard	Projected Annual	Total Employment 1/					'10-'30
Employment Sector	Growth Rate[1]	2010	2015	2020	2025	2030	Change
Construction	0.8%	3,451	3,597	3,749	3,908	4,074	**624**
Manufacturing	0.4%	3,272	3,330	3,389	3,449	3,509	**237**
Wholesale Trade	1.6%	3,985	4,316	4,674	5,062	5,482	**1,498**
Retail Trade	1.3%	7,503	8,012	8,555	9,135	9,754	**2,251**
Transport., Warehousing, Utilities	1.1%	1,103	1,168	1,236	1,308	1,384	**281**
Information	1.0%	1,746	1,834	1,926	2,023	2,125	**379**
Financial Activities	1.0%	5,865	6,179	6,509	6,858	7,225	**1,359**
Professional & Business Services	2.2%	8,415	9,385	10,466	11,671	13,015	**4,600**
Education & Health Services	2.7%	4,448	5,073	5,785	6,598	7,524	**3,076**
Leisure & Hospitality	1.8%	2,997	3,277	3,584	3,919	4,285	**1,288**
Other Services	1.3%	1,306	1,391	1,483	1,580	1,684	**378**
Government	1.5%	407	440	475	513	554	**146**
Total	**1.5%**	**44,499**	**48,001**	**51,830**	**56,023**	**60,615**	**16,116**

SOURCES: City of Tigard Economic Opportunities Analysis (2010), Metro adopted employment forecast, Oregon Employment Department, Johnson Reid LLC

Figure 8.3 projects total employment in the PMA will grow by 36% over the next 20 years, with a total of over 16,100 new jobs.

The Tigard Economic Opportunities Analysis (EOA) provides projections of industrial job growth over the next 20 years, based on Metro job growth forecasts. Therefore, this analysis uses the EOA projections for consistency.

Figure 8.4 below presents the tables of projected employment from the Tigard EOA. The projection calls for 794 to 1,324 new jobs in the "Industrial/Other" category over the next 20 years.

FIGURE 8.4: PROJECTED EMPLOYMENT
PRIMARY MARKET AREA

Projected Tigard Employment, Medium Forecast Scenario, 2005-2035

			Change	
	2005	Proj. 2035	Jobs	%
Retail Trades	9,854	14,426	4,572	46%
Services	11,372	23,482	12,110	106%
Industrial/Other*	12,049	13,637	1,588	13%
Government*	8,033	9,092	1,059	13%
Total	**41,308**	**60,637**	**19,329**	**47%**

Source: Metro adopted housing and employment growth forecasts, 2007; Metroscope Gen. 2.3. Assumes allocation of "Other" jobs at 60% industrial, and 40% government. In light of the recent national economic recession that caused severe declines in Oregon employment from 2007 through 2010, Metro's 2030 job forecast for Tigard is assumed to be achieved by year 2035 under the "medium forecast" scenario.

Projected Tigard Net New 20-Year Employment Forecast

	Low	Medium	High
Retail Trades	2,286	3,048	3,810
Services	6,055	8,073	10,092
Industrial/Other*	794	1,059	1,324
Government*	529	706	882
Total	**9,665**	**12,886**	**16,108**

SOURCES: City of Tigard Economic Opportunities Analysis (2010)

Figure 8.5 below shows the estimated demand for industrial space in the Primary Market Area, from the EOA. Industrial demand is broken down into Flex, General Industrial, and Warehouse. The total projected demand for this space ranges from 1,080,000 to 1,800,000 square feet over 20 years.

FIGURE 8.5: PROJECTED DEMAND FOR INDUSTRIAL SPACE
PRIMARY MARKET AREA

Table 5. Forecasted 20-Year Total Building Space Needs in Tigard for Employment

Employment Type	Slow	Moderate	High
Office	1,499,000	1,998,000	2,497,000
Institutional	170,000	227,000	285,000
Flex/Business Park	451,000	602,000	752,000
General Industrial	257,000	342,000	428,000
Warehouse	374,000	499,000	624,000
Retail	1,498,000	1,997,000	2,497,000
Total	4,249,000	5,665,000	7,083,000

Notes: See supporting analysis in Appendix C.

Source: FCS GROUP.

SOURCES: City of Tigard Economic Opportunities Analysis (2010)

IX. SUMMARY OF LAND USE DEMAND FINDINGS

As the analysis above indicates, basic trends in household and employment growth in the general market area point to healthy continuing demand for residential, commercial and industrial uses into the future. These broad growth and demand projections create flexibility in the planning for different uses in the THCTC Land Use Plan Area.

The table below summarizes the findings of demand in the market area, from the above market analysis. Residential demand is presented in terms of housing units. Non-residential uses are presented in square feet of building space. The figures in this table have been rounded, and therefore may differ slightly from those presented in the sections above.

FIGURE 9.1: PROJECTED SPACE NEED
MAJOR LAND USE TYPES
PRIMARY MARKET AREA

Land Use Category	New Space Demanded - 2010 - 2030								
	Base Scenario		Acreage	High Growth		Acreage	Low Growth		Acreage
Ownership Residential	3,715	units	na	4,010	units	na	3,420	units	na
Rental Residential	1,180	units	na	1,270	units	na	1,090	units	na
Retail/Commercial	509,800	sf	39.0	551,000	sf	42.2	469,020	sf	35.9
Office	1,592,100	sf	73.1	1,719,000	sf	78.9	1,464,730	sf	67.3
Industrial Total	1,443,000	sf	108.9	1,804,000	sf	136.2	1,082,000	sf	81.7
Warehouse/Distribution	*499,000*	*sf*	38.2	*624,000*	*sf*	47.8	374,000	*sf*	28.6
General Industrial	*342,000*	*sf*	26.2	*428,000*	*sf*	32.8	*257,000*	*sf*	19.7
Tech/Flex Space	*602,000*	*sf*	44.6	*752,000*	*sf*	55.7	451,000	*sf*	33.4

[1] High and low growth scenarios represent base case +/- 8% growth respectively.
[2] Acreage based on the following FAR assumptions: Retail .3 FAR; Office .5 FAR; Industrial .3 FAR
SOURCE: Johnson Reid, LLC

Demand for non-residential land uses is converted into estimates of acreage by applying standard Floor Area Ratios to the estimated space demanded. Residential acreage is highly dependent on the type and density of the units proposed. Therefore JOHNSON REID did not make an attempt to determine specific housing types as part of this analysis. Subsequent phases of the land use planning project will address this issue.

What This Table Represents

The demand projections presented above represent the demand in the *total Primary Market Area*. How much of this demand might ultimately be met by new community development within the planned high capacity transit corridor will be determined by policy decisions and market forces alike. As this planning process moves forward, these projections can serve as a guide on how to plan land uses in the station communities.

In general, these findings point to strong growth potential for all uses over the next 20 year period based on past and projected trends. However, considering the City's growth

constraints, it will be unable to meet the demand for new land identified in the table. This will have two likely effects.

- As land and development opportunities become constrained, this will create pressure to exhaust available vacant land and redevelop obsolete properties. Part of this long-term process should include raising land values, which will make TOD more viable over time. This might be a process extending over many decades.

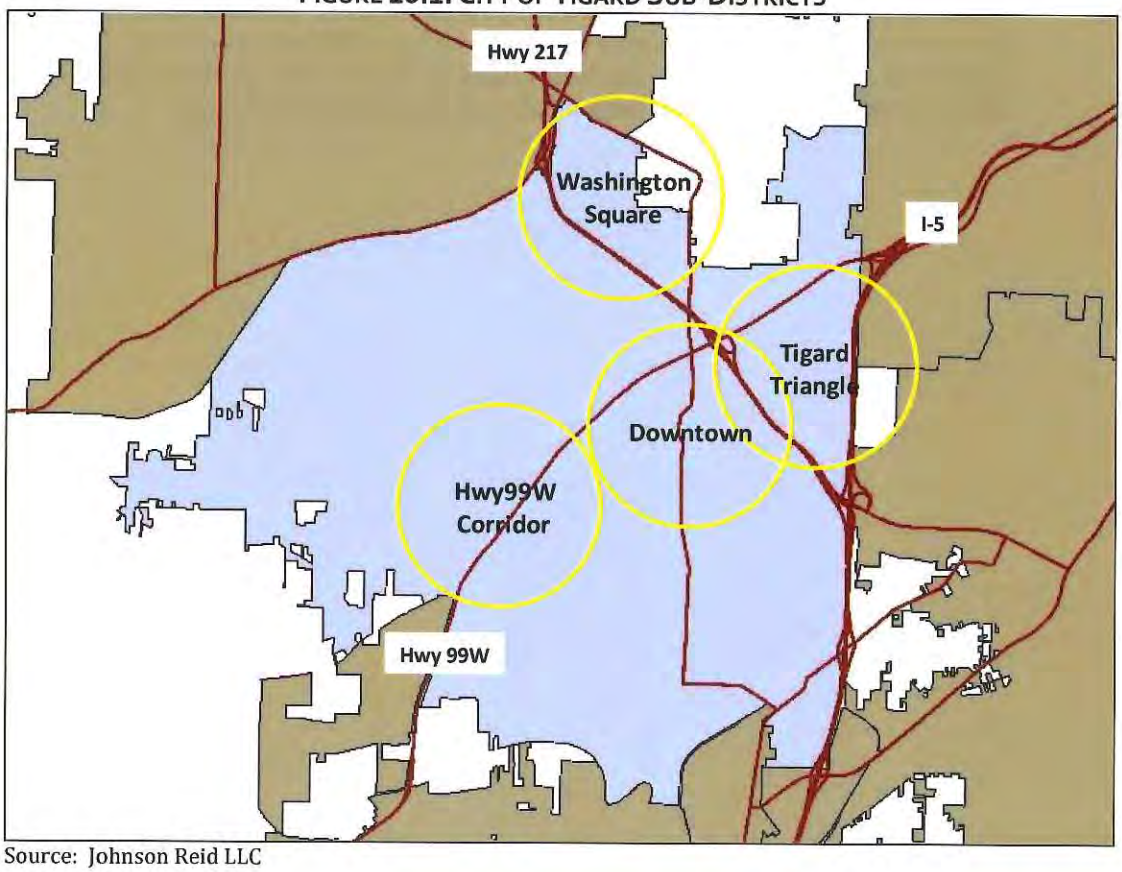
- The second effect is that, as land in Tigard becomes constrained, much of this demand will be met in other parts of the southwest Metro area, in neighboring cities or in unincorporated Washington County. People searching for housing, or businesses searching for space, do not necessarily think in terms of jurisdictional boundaries and are thus willing to consider a range of alternative options. Thus, the amount of upward pressure on land values in Tigard will be dependent on the supply of alternative locations both inside and outside the Metro area.

X. TIGARD SUB-DISTRICTS

This Section provides greater detail on four Tigard Sub-Districts to aid in the designation of station communities. The general sub-districts considered are:

- Washington Square area
- Tigard Triangle
- Downtown area
- Highway 99 Corridor (Western Portion)

FIGURE 10.1: CITY OF TIGARD SUB-DISTRICTS

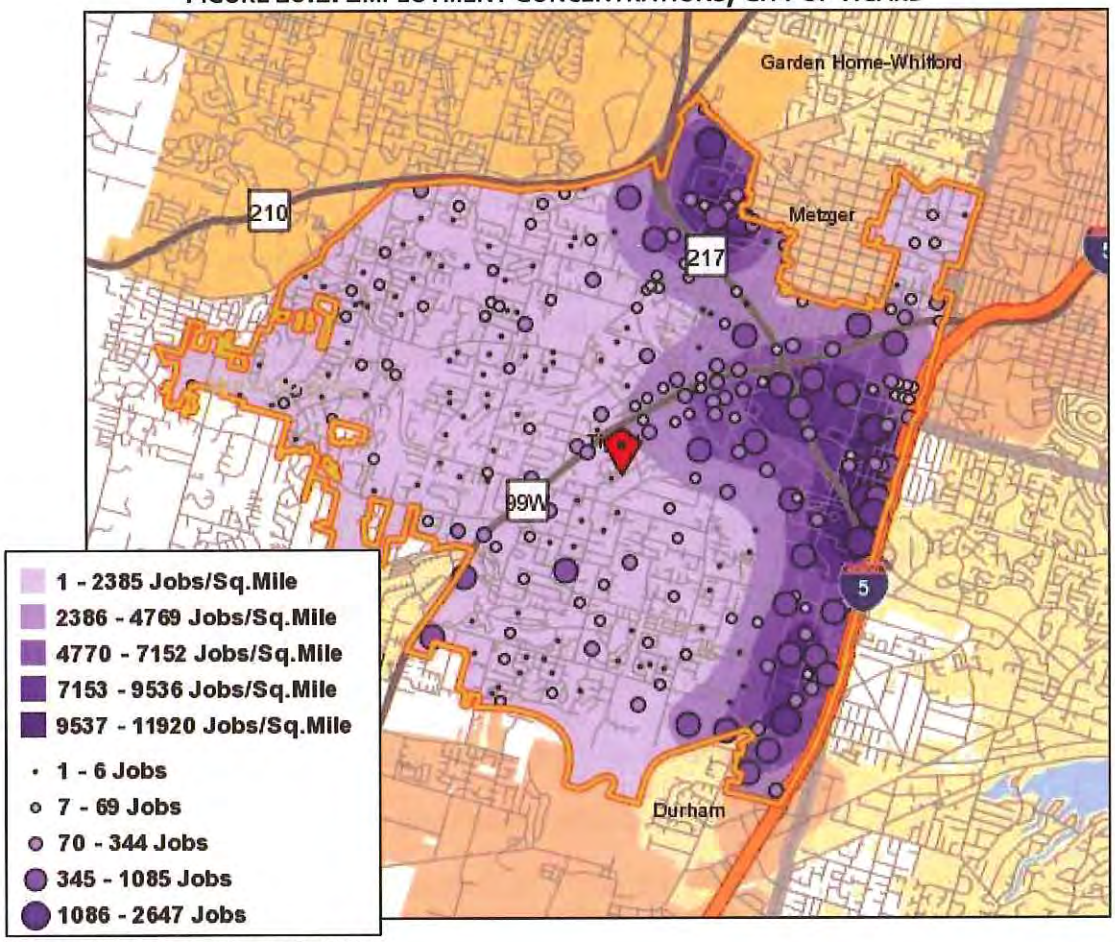


Source: Johnson Reid LLC

The following map shows a general "heat map" of employment in the City of Tigard. Employment is greatly concentrated in the Tigard Triangle area, extending south along the I-5 freeway. The Washington Square area is also a significant hub of employment. These areas have in common good regional transportation connections. Washington Square features the mall as a regional draw, featuring significant retail employment, as well as office uses which subsequently grew in the area.

The Tigard Triangle/Kruse Way area has developed into one of the region's top-end office employment centers. It is located nearby to desirable living communities, while also providing an accessible location for other employees from Portland to Salem due to ready freeway access.

FIGURE 10.2: EMPLOYMENT CONCENTRATIONS, CITY OF TIGARD



Source: U.S. Census, Johnson Reid LLC

Washington Square (WS): The area around the Washington Square mall is characterized by heavy commercial uses, both retail and office. Washington Square is a regional enclosed mall, meaning it draws customers from the entire region extending from the mid-Willamette Valley to SW Washington State, though most of its customer base is from the Portland Metro area.

Because of this wide draw, retail space within the mall and in surrounding properties can achieve higher rent levels, making the WS sub-district the strongest retail location among the sub-districts considered.

In addition, the area features many office developments. The Lincoln Center complex which features one of the tallest buildings in Washington County (Lincoln Tower). The achievable office rents in this sub-district are somewhat less than in the Tigard Triangle, but higher than in Downtown or the Highway 99W corridor.

Within a half-mile radius of Highway 217 there are few residential uses of any kind. To the west, Fanno Creek creates a barrier between residential neighborhoods and WS. To the east, residential neighborhoods begin roughly half a mile away.

Going forward, the area remains a strong location for retail and office uses. Prospective residential uses may require sufficient buffering from the highway, as well as the traffic and activity of the mall area itself.

Tigard Triangle (TT): The Tigard Triangle area, bounded by Highway 99W to the north, Interstate 5 to the east, and Highway 217 to the west is also predominantly commercial in nature. The northern portion is characterized by auto-oriented highway commercial forms such as small strip centers or shopping malls, and individual drive-in businesses. There is also a significant presence of "big box" retail, taking advantage of the confluence of transportation routes in the area.

The southern portion of the Tigard Triangle is dominated by office uses. In terms of land use and character, this area blends into the Kruse Way office market which lies on the east side of I-5. It is a strong office location, achieving the highest office rents in the city. As Figure 10.2 shows, this is also the heart of Tigard's employment base.

In between these two areas (highway oriented retail, and freeway-oriented employment) is an older residential neighborhood, featuring many single-family homes. Situated between these commercial uses, and enjoying flexible mixed-use zoning, it is likely that this area will redevelop over time, both as additional commercial uses, and denser housing types.

The Tigard Triangle is likely to remain a strong location for commercial uses in particular.

Downtown/Central Tigard (DT): Currently, the downtown area is characterized by older, low-rise development of a wide mixture of uses. Retail and commercial services dominate Main Street, including auto-oriented shopping centers on the north end, and more traditional storefront buildings on the street itself.

Legacy industrial uses are prevalent to the southeast and near the rail line. The City owns significant land in the south end of the Downtown where the City Hall and public works departments are located.

Some multi-family residential uses exist in the form of smaller apartment complexes and a mobile home park near the center of the district, but the addition of residential density remains a key goal of the long term vision for the district.

Downtown Tigard is the focus of redevelopment efforts for the city. There is an Urban Renewal district in place which aims to generate new economic and development activity in the Downtown.

The Downtown area is a key location for retail and services which serve a more local customer base than the WS or TT areas. As such, uses will tend to be smaller and employment density is likely to be less. However, as opposed to WS or TT, the Downtown seems to have greater potential to be a pleasant compact residential area, with ready access to retail, dining and services around Main Street.

Highway 99W Corridor (99W): The Highway 99W Corridor is a high-traffic auto-oriented transportation corridor. As such, it is dominated by auto-oriented retail and service uses for nearly its entire length through the city. Uses range in age, condition, and achievable rent levels. Nearly all rely on a customer base that arrives by automobile.

However, these commercial uses generally form a narrow band along the highway, with residential areas located behind the businesses. Because of this, potential station locations along this highway could feature commercial uses in the immediate area, while still featuring significant residential development within a half-mile radius of the station.

Some of these residential neighborhoods are currently zoned for medium-density residential, while others are low-density residential. Due to the ownership pattern in low-density neighborhoods featuring detached homes on separate lots, redevelopment can face significant market hurdles.

Commercial parcels with highway frontage will likely maintain their strong auto-orientation. Newer, higher value developments and shopping centers are unlikely to redevelop even with rezoning or significant incentives. Therefore, older or under-developed properties are the best candidates for achieving new TOD in this corridor. Commercial users of new TOD would likely continue to insist on sufficient parking levels to support their businesses.

Achievable Pricing Levels

The following table presents estimated pricing levels for various land use types in the general sub-districts.

FIGURE 10.3: ESTIMATED UPPER PRICING LEVELS
FOUR SUB-DISTRICTS, CITY OF TIGARD

Land Use	Wash. Square	Tigard Triangle	Downtown	Highway 99W
Retail:	$30 /sf/yr	$24 /sf/yr	$16 /sf/yr	$22 /sf/yr
Office:	$22 /sf/yr	$26 /sf/yr	$16 /sf/yr	$18 /sf/yr
Industrial:	$12 /sf/yr	$12 /sf/yr	$10 /sf/yr	na
Res Rent:	$1.10 /sf/mo.	$0.95 /sf/mo.	$1.10 /sf/mo.	$1.00 /sf/mo.
Home Pricing:	$190 /sf	$160 /sf	$190 /sf	$170 /sf

Source: Loopnet, RMLS, individual properties, Johnson Reid LLC
* Retail and industrial rents are NNN. Office rents are full service.

The following section discusses likely development forms in these sub-districts.

XI. DEVELOPMENT FORMS

This Section discusses the feasibility of new development within potential station communities. The goal of this discussion is to provide a picture of development parameters under current and expected market conditions. The parameters of economic viability provided here are meant to inform the creation of redevelopment alternatives in subsequent phases of this planning process.

Likely Development Forms

This section discusses the development forms that are likely for the different land uses in station communities in Tigard. The specific station communities have not been identified at this stage of the process, and therefore this discussion addresses the four broad sub-districts identified in the previous section. These areas include a range of neighborhoods characterized by different existing land uses. Therefore, this discussion is general by necessity.

The development forms discussed do not reflect the impact of public policy and design initiatives which might result from this planning process, and might influence the density and design of what is ultimately developed at the site.

The four land use types under consideration are Residential, Office, Retail, and Light Industrial.

Low-Rise vs. Mid-Rise Development:
The density of development forms is driven by achievable pricing/rent levels at the site in question. In a metropolitan environment, the highest rents and land values are typically found in the center of the city. Not coincidentally, this is where the most density occurs in the built environment. The central city is where high-rises, full-site coverage buildings, and parking garages are found. In short, the higher rent levels achievable in the city center justify the cost of more intense use of the land.

As one moves away from the central city, towards the suburban environment, achievable rents and land values tend to decrease steadily. In most suburban environments, achievable rent levels will support low-rise construction. ("Suburban" in this context means anything outside of Downtown Portland, and the immediately surrounding inner neighborhoods.)

Low-rise development is typically limited to three or four stories, and utilizes wood frame construction. The shift from four to five stories often includes switching to concrete and steel frame construction, which adds substantial cost. Unless achievable rents also rise, a building that is feasible with low-rise construction can become infeasible by adding a single story.

Major factors which increase in cost for denser development can include materials, structured parking, specialized labor and equipment, building elements such as elevators and firewalls, and costs of entitlement and the approval process. Because of this dynamic,

most locations outside of Portland's central city face difficulty in achieving a built form over three stories in height without subsidy.

The lower rents which are currently achievable in Tigard will limit some of the development types that the market is likely to bring to the area. However, in an environment where most existing uses are single-story with ample surface parking, significant increases in density can be achieved while still relying on "low-rise" wood construction to control costs. Two- to three-story buildings, perhaps with reduced parking and other design considerations can greatly increase the intensity of land use, without necessitating the higher construction costs of concrete and steel mid-rise buildings.

Likely Residential Forms:
Currently, the prevalent multi-family development type in Tigard is a two-to-three story walk-up garden apartment, with surface parking. Such properties are wood construction, with apartment flats and occasionally two-story units. Such properties generally feature an FAR of .75 or less, and commonly no more than 0.5 FAR. The achieved density may be anywhere from 14 to 30 dwelling units per acre.

The following table presents examples of two common suburban development forms.

FIGURE 11.1: LOW-RISE RESIDENTIAL, EXAMPLES

Garden Apartment or Condominiums with Surface Parking	Typically wood frame construction with surface parking, carports or stand-alone garages. Construction is usually two to three stories high, with a density approaching 30 units per acre. This is a predominant form outside the central city.	
Attached Duplex/ Townhomes	Also typically wood frame, these units often have parking under the unit from street or back alley. Projects can be fee simple or with condominium ownership of the ground. 15 to 20 units per acre.	

Source: Johnson Reid LLC

Attached for-sale condos become rarer as one moves away from the central city. Typically, if condos are found in the suburbs it is in a specialized environment such as on a golf course, or in a retirement village. In recent years, during the heated real estate market, condo development began to spread from its traditional location in the central city, driven by high demand and pricing which has softened considerably.

JOHNSON REID believes it is unlikely that the market will deliver condos to suburban communities in any great number for the foreseeable future. This is because houses in these areas remain relatively affordable in comparison to the pricing level of a new-construction condo unit. As Station Communities develop with attractive amenities over time, condominium development will become more attractive.

For-sale townhomes are a more viable development form in outer locations than condo flats. Built in attached groups of two to four, with sufficient common and green space, these should be a viable form in the Tigard market area. Townhomes can achieve a density of 16 to 22 units per net acre.

With the end of the "housing boom" in 2007, rental housing has regained its important place as a good housing option for many segments of the population. It remains the most likely use for most housing forms denser than townhome development.

Likely Office Forms:
There is a variety of office space in Tigard, offering a range of ages, conditions, and formats. In the Tigard Triangle and Washington Square areas, mid-rise construction has been viable during strong economic times. These areas can be expected to continue to support five or six story buildings in the future. This allows for significant employment density, and mixed-use opportunities on the ground floor near busy arterials.

While office development elsewhere in Tigard may be limited to three stories, low-rise construction still allows for a range of attractive design in new office development, including brick facing or curtain window designs.

As with residential uses, three stories can allow for the development of significant density. Such office construction typically relies on surface parking, which can limit the floor area ratio that the building itself can achieve (0.3 to 0.35 are typical market-driven FAR). In the suburban environment structured parking is very rare, and often seen only near hospitals and regional shopping malls.

The greatest challenge to large-scale office development can be drawing the interest of large employers to an area. In Tigard, such employers have traditionally been attracted to the Tigard Triangle. New station communities may have to feature amenities and perhaps a strong overall marketing vision to introduce and draw employers to the mixed-use atmosphere.

FIGURE 11.2: LOW-RISE OFFICE, EXAMPLES

In keeping with the mixed-use nature of the typical station community, a more likely form of development might be smaller office spaces meant for small firms and individuals. More modest in scale, these forms can fit comfortably next to residential and retail uses, including on the ground or upper floors of mixed use projects. Smaller scale office development on sites of an acre or smaller may be more likely in parts of the City which are more developed and available parcels are smaller.

Retail:
The sub-districts include three broad types of retail uses: the Washington Square mall and surrounding area, Highway 99W corridor, and small-scale local retail in the downtown area.

In Tigard, retail tends to be single-story, single-use, with surface parking. Multi-story retail is essentially non-existent outside of shopping malls and Downtown Portland. Typical FAR for suburban retail is 0.2 to 0.3 to allow for ample parking.

Any station communities located within the Highway 99W corridor will face the competition from the heavy auto-oriented retail use currently located along this corridor. As with many high-traffic arterials, Highway 99W through Tigard features many existing shopping centers of various sizes and ages, as well as many single-use retail/commercial properties.

If smaller neighborhood-level retail spaces are planned for in the Station communities, it should be noted that they will be most successful in attracting and keeping retail tenants if they are developed after additional residential density is achieved. Even small retailers generally draw customers from an area greater than the surrounding neighborhood.

It should also be noted that parking is essential to retail success. Only in very dense areas can businesses thrive with no off-street auto parking. Parking needs to be convenient, but can be formatted in different ways – for instance, shared parking for a district. Storefront businesses with ample on-street parking and perhaps a lot within convenient walking distance may not require surface parking of their own.

FIGURE 11.3: LOW-RISE MIXED USE, EXAMPLE RESIDENTIAL OR OFFICE OVER RETAIL

Central Point, Gresham: Mixed use residential over retail, using tuck-under parking. Utilized Metro TOD easement.

Lake Norman, NC: Example of low-rise residential over retail mixed use. Significant density added with low-rise development.

Light Industrial:
The development form of industrial uses is almost uniformly single-story. Industrial businesses often seek the lowest-rent real estate of all the land use categories (other than rural uses), and therefore inexpensive construction types in areas with relatively low land values are the most likely location. The exception is high-value, high tech manufacturing businesses. However, these businesses do not typically locate in station community environments.

In addition, true industrial uses can be disruptive to residential or office or other uses in a mixed use environment, due to noise, fumes, traffic, and hours of operation. Industrial areas programmed in the station communities may be best left segregated to the extent possible for these reasons.

Summary of Development Forms:
The following table summarizes the development forms which are currently likely to appear in new development in the sub-districts, *absent public policy changes or incentives.*

FIGURE 11.4: VIABLE NEAR-TO-MID TERM DEVELOPMENT FORMS

Land Use	Wash. Square	Tigard Triangle	Downtown	Highway 99W
Retail:	Single story	Single story	Single story	Single story
Office:	4-5 story	4-5 story	1-2 story	1-2 story
Industrial:	Single story	Single story	Single story	Single story
Rental Housing:	2-3 story	2-3 story	2-3 story	2-3 story
For-sale Housing:*	2-3 story	2-3 story	2-3 story	2-3 story

Source: Johnson Reid LLC
* Assumes that new residential development s in station communities would be attached single family or multifamily.

XII. POLICY TOOLS FOR TRANSIT ORIENTED DEVELOPMENT

Over the long term, Tigard is expected to realize development densities significantly higher than currently viable in the area. Financial viability under current market conditions is the primary obstacle to achieving more urban development forms in the next five- to ten-year time frame.

While these densities may prove viable over the longer planning period, in the short- to mid-term market intervention will likely be required to achieve the targeted development activity. The following section provides an overview of policy tools and strategies to improve feasibility in hypothetical station communities along the proposed corridor.

The table is organized from the least direct to the most direct incentives and regulatory measures. They range from tools which simply allow the targeted development to occur, to those which require certain development types, or provide financial incentives or direct assistance to developers. Some of these policy tools have already been adopted by Tigard, while others could be considered to facilitate the development environment.

FIGURE 11.1: POLICY TOOLS AND INCENTIVES

Policy	Mechanism; Comments	Effect on Density	Cost
Increased permitted density Density bonus Development rights transfer	Allows densities at higher level than previously allowed	These types of approaches only work if density limits are below what the market determines in the highest and best use.	Small: requires change to zoning code
Mixed-Use zoning	Allows flexibility to mix uses. This policy can be either an incentive ("allow") or a regulation ("require")	Weak: May or may not increase density.	Small: requires change to zoning code
Regulatory relief: permit process	Streamline permitting. Make all permits available in one location, provide clear accessible information on requirements, and allow flexibility to consider innovative development	Moderate: direct effect on the cost of development, but not for specific development types.	Small: requires reorganization of internal processes
Regulatory relief: fee reduction	Wide range: reduces SDCs, building fees, exactions, etc.	Strong: direct effect on the cost of development	Moderate to high: loss in revenue to local government (unless the development would not have otherwise been built)
Regulatory relief: design standards	Wide range: allows narrower streets, less parking, smaller setbacks, less landscaping	Strong: increases density directly and can decrease developer costs by increasing revenue-generating space	Small: requires change to zoning code

FIGURE 11.1: POLICY TOOLS AND INCENTIVES (CONTINUED)

Policy	Mechanism; Comments	Effect on Density	Cost
Land assembly	Acquisition, by voluntary negotiation or eminent domain, of contiguous parcels to create large developable tracts	Strong: increases marketability of downtown for development community	Moderate
Property Tax Abatements	Tax abatement for qualified residential and mixed-use development which meets certain community goals	Increased net operating income or achievable sales prices, enhancing return and allowing for higher density.	Modest; Short term loss in property taxes can be offset by long term gain in value.
Low Income Housing Tax Credits	Tax credit program administered by OHCS; Requires provision of special needs housing	Can improve the viability of rental housing projects	Low: federally funded
Phased Development	Allows placement of buildings to allow future infill	Strong: prevents preclusion of higher future densities but allows development to occur.	Small: additional planning, some higher development costs
Minimum-density zoning	Requires that development meet some minimum requirement for density Uniform application throughout jurisdiction or region ensures development doesn't shift to a less restrictive zone	Strong: ensures minimum expectations are met But can preclude any development if market is not ready for higher-density development Already done in downtown Beaverton	Requires fundamental change to zoning code and comprehensive plan Reduces the value of land when it precludes development of the property under its highest and best use
Direct subsidy for development; public or public/private investment	Direct grants or loans for low-interest loans for land infrastructure, parking, etc. Often requires Urban Renewal or a Local or Business Improvement District	Strong: direct intervention to fill feasibility gaps, or ensure that projects include publically-desired features	High: Direct participation in financing development. Loans have potential for repayment, but are typically low-interest and may not reflect the real risk of an unusual urban or redevelopment project

The following is an overview of the implications of the potential actions listed above on the general financial viability of projects.

Allowing Dense Development

The impact on viability of allowing density is relatively limited in an area in which higher densities are not currently viable.

Reduce Planning and Information Costs

The reduction of planning and information costs improves viability in a number of ways. Increased certainty regarding what will be approved and abbreviated approval timelines

lowers the level of uncertainty associated with entitlement, which lowers holding costs and may lower the required return parameters. This can have a substantial financial impact on the development, as well as lowering the required yield to induce new development. Readily available and current information lowers predevelopment costs. More importantly, it can broaden interest in the area by lowering the "learning costs" associated with understanding the local market.

Land Assembly
By assisting in land assembly, the City can reduce the developer's carrying costs (i.e. cost of financing land during predevelopment phase) as well as uncertainty.

Tax Abatement
Measures to reduce ongoing property taxes have a significant impact on viability. Tax abatement programs are the most commonly used of these types of measures, typically with a term of ten years on qualifying projects. PDC has examples of this program type. One approach is to maintain the tax on the underlying land, but exempt some or all of the built structure for the specified time period. The savings on tax costs changes the operating pro forma and makes more costly development feasible.

The trade-off is that for the abatement period, the site is not generating new tax increment other than appreciation on the land.

Low Income Housing Tax Credits
HUD, through the State of Oregon, provides tax credits for affordable housing projects. These credits significantly improve the viability of many rental projects, despite limits on rents that can be charged. As shown in the table to the right, the present value of a 4% tax credit can be equal to a quarter of qualified cost. While qualifying projects typically must demonstrate a significant rent advantage relative to what is achievable in the market, the program still provides for a net boost in viability.

Example of Low Income Housing Tax Credits	
Qualified Cost:	$90,000
Credit Percentage:	4%
Credit Period/ Years:	10
Total Value:	$36,000
Assumed Discount Rate:	12%
Present Value (Discounted):	$22,782
Present Value/ Qualified Cost:	25.3%

This program has lost some effectiveness in the current economic climate as the tax credits are less attractive to investors who do not currently have gains to offset. Economic improvement may be necessary for this tool to again achieve its full effectiveness.

Phased Development
Phased development, or shadow platting, is an aggressive tool to ensure that current development does not preclude future development at greater densities. It is generally applied to larger sites that have the land area to accommodate multiple phases. A common approach is to allow for future development on surface parking lots of earlier development phases.

Depending on how this is handled the cost to the developer can be low to high. If the phasing does not significantly disrupt what was planned for the current development, then costs will be low. If the phasing plan does change the current plan in significant ways, requiring redesign, the costs to the developer could be large. Phased development should be carefully designed and well-promoted to ensure property owners and developers understand it is in place and the types of requirements it brings with it.

Direct Grants/ Parking Subsidy

These types of actions have a direct impact on the bottom line, delivering a large impact but at a large cost. The present value of grants is fairly straightforward to calculate, as is removing the cost of structured parking from a project. Low interest loans provide a number of benefits. First of all, they typically reduce the equity requirement for the project, with equity carrying a relatively high cost for the development. This can be through a better debt coverage ratio associated with lower-cost funds, and/or a lower equity requirement per the terms of the debt.

Subordinated debt: A commonly used tool for providing subsidy is subordinated or second position debt, which is a loan to the developer which is subordinate to senior lenders. This type of debt is not typically available in the market, as it is not adequately secured by real property. Nevertheless, senior lenders often accept it as a form of equity, and therefore it doesn't reduce senior loan amounts.

Subordinated debt is often provided with favorable terms and lower-than-market interest rates. It is used to reduce equity requirements for the developer, and directly impact the feasibility gap in the project. If the project is successful, the loan provides a return of principal with modest interest gains. Due to the investment and favorable terms, subordinated debt should be used on projects meeting key public goals, such as provision of affordable housing, public amenities, or a catalyst project.

The administration of a direct grant or loan program often requires access to a program such as Urban Renewal or an Improvement District to provide a large-enough dedicated source of funding.

SPECIFIC TOOLS & FUNDING MECHANISMS

Tax Increment Financing

Tax Increment Financing (TIF) is the revenue mechanism which underlies "Urban Renewal" programs. TIF functions as a dedicated revenue source for the projects described in an Urban Renewal Plan. In addition, it provides additional flexibility for buying and redeveloping sites, and participating in public/private development partnerships.

The main functional force behind Urban Renewal (UR) is Tax Increment Financing. TIF works by "freezing" the current property tax base in the UR district, and assigning the future tax growth to the UR district itself to pursue the identified projects.

The current local taxing jurisdictions (the city, county, schools, fire districts, etc.) continue to receive the "frozen" amount of taxes throughout the life of the UR district. However, the property tax base within the district will continue to grow through appreciation, and if the UR program is successful, through new development. The UR agency uses that new "tax increment" to implement the UR Plan and meet its goals over the life of the district.

Urban Renewal funds must generally be used for physical improvements to land and property, which may be public or private. In support of these goals, the UR agency can contribute to related actions such as direct acquisition or pre-development phases such as feasibility and design.

The City of Tigard voted to approve an Urban Renewal Area for the Downtown area in 2006. This tool might be considered for other areas of the City as well.

Metro Transit-Oriented Development (TOD) Program

Metro administers a program specifically to facilitate transit-oriented development in the region:

> Metro's TOD Program offers financial incentives to establish the public-private partnerships needed to stimulate transit oriented development. Metro's innovative program helps offset the private sector costs of high quality dense and vertical mixed-use development by purchasing transit-oriented development easements from developers and, in some cases, acquiring and selling land near transit at a reduced cost.
>
> Funding for the Metro TOD Program is allocated by regional partners through the Metropolitan Transportation Improvement Program (MTIP) process, and then TriMet and Metro exchange funds so that local dollars are used for TOD Project funding. This simplifies program administration, avoids the cost impacts of cross-cutting federal requirements, and allows TOD project funding decisions to be made relatively quickly, within the region. The TOD Program works closely with local jurisdictions to support the type of development that community seeks to attract.
>
> In Oregon, when state or local funds are used for a public-private partnership project, and there are no federal funds involved, state prevailing wage laws can apply, resulting in higher project costs and affecting financial feasibility. (Metro)

Oregon Vertical Housing Program

This State program offers a partial tax exemption in designated Vertical Housing Development Zone (VHDZ). Local jurisdictions must apply to the state to designate a new VHDZ.

> The purpose of the Program is to encourage investment in and rehabilitation of properties in targeted areas of a city or community, to augment the availability of appropriate housing, and to revitalize communities. The program encourages mixed-use developments that contain both non-residential and residential uses in areas (zones) designated by local jurisdictions. The residential portion may be for market rate or lower income households. Eligible projects receive a partial property tax exemption which varies with the number of "Equalized Floors" in a project, with a maximum property tax

exemption of 80 percent over a 10 year term. An additional partial property tax exemption on the land may be given if some or all of the residential housing is for low-income persons (80 percent of area median income or below).

Eligible Projects: A mixed-use project that contains both non-residential and residential uses that meets the certified project criteria located in a Vertical Housing Zone designated by the local jurisdiction and approved by the Department. The project can be new construction or rehabilitation of a multiple-story building, or group of buildings with at least one multiple-story building.
(Oregon Housing and Community Services)

Oregon Multiple Unit Housing Program
This State program allows local jurisdictions to establish local tax exemption programs for multi-family housing. Unlike the Vertical Housing program the MUH program does not require a mixture of residential and commercial uses, and provides flexibility to better tailor the program to local needs.

The City of Portland Housing Bureau administers one example of this program, called the New Multiple Unit Housing (NMUH) Property Tax Exemption Program. The program provides a tax exemption of up to ten years for projects meeting certain criteria for unit number, affordability, public amenities and others. The program is targeted at generating housing in the Central City, and Urban Renewal Areas.
(www.portlandonline.com/phb/index.cfm?c=53033)

Oregon Affordable Housing Programs
This State administers multiple programs to encourage the development of affordable housing, which may assist in achieving TOD, including:

- Housing Development Grant Program
- Oregon Affordable Housing Tax Credit
- Loan programs for special-needs populations
- Pass-Through Revenue Bond Financing
- Predevelopment Loans
- Risk-Sharing Loan Program

Established affordable housing developers will be familiar with many of these programs, but market-rate developers may not be.
(www.oregon.gov/OHCS/MFH_Multi_Family_Housing_Section.shtml)