Building a complete street system

2035 REGIONAL TRANSPORTATION PLAN

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RTP FACT SHEETS:
ONE IN A SERIES

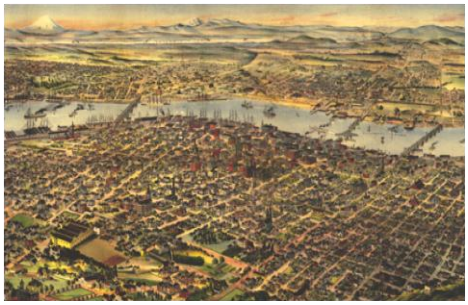
The 2035 Regional Transportation Plan sets the course for using innovation and creativity to build a sustainable transportation system. It calls for making transportation investments that serve downtowns, main streets, job centers and other areas of urban activity. It sets out the importance of offering a range of affordable transportation options for everyone. It suggests that transportation investments should boost our economy, increase access and opportunity for underserved communities and clean our air. And it calls for on-going monitoring to ensure that as time goes on our investments are effectively coordinated across communities to make the most of past investments and keep this region a great place.

Metro | *Making a great place*

Metro, the regional government, crosses city limits and county lines to build a resilient economy, keep nature close by and respond to a changing climate. Representing a diverse population of 1.5 million people in 25 cities and three counties, Metro's directly elected council gives voters a voice in decisions about how the region grows and communities prosper.

The region's inherited street legacy

Though the region has changed dramatically over the past century, the shape of the region's major street network has changed little. Most streets were once farm-to-market roads, many established along donation land claim boundaries at half-mile or mile spacing.



1890 street network in Portland region

The region's throughway system evolved from the mid-1930s, when the first highway was built from Portland to Milwaukie, to the completion of I-205 in the early 1980s. Much of the throughway system was built along the same donation land claim grid that shapes the regional street system, with most throughways following older farm-to-market routes or replacing major streets.

This inherited network design has proven to be an adequate match for the changing travel demands of a growing region. The 2035 Regional Transportation Plan applies the principles of this proven network to developing and undeveloped areas in the region, while seeking opportunities to bring developed areas closer to this ideal when possible.

Three policies form the RTP complete system vision

1. Build a well-connected network of "complete" streets that provide safe and convenient automobile, transit, freight, pedestrian and bicycle access

2. Improve local and collector street connectivity to complement major streets

3. Streamline system operations to maximize existing capacity prior to building new motor vehicle capacity

Defining a complete system

The 2035 RTP redefines the function of the regional street and throughway system.

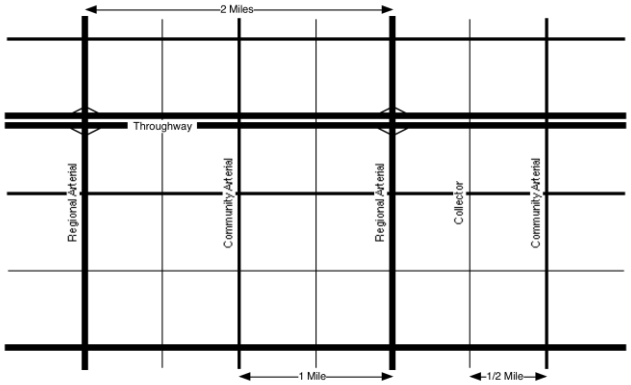
Rather than relying on levels of congestion to direct how and where to address motor vehicle capacity needs, the plan calls for creating a well-connected network that better serves all forms of travel.

In general, the roadway network should be designed to provide for trips through or across the region on throughways, shorter trips within communities on arterial streets and the shortest trips on collector and local streets.

This approach results in a traffic hierarchy of:

- *throughways (such as I-84, US 26, I-5 and I-205)*
- *arterial streets (e.g. Cornell Road, Powell Boulevard and Sunnyside Road)*
- *collector streets*
- *local streets.*

The RTP regional street and throughway network concept calls for one-mile spacing of major arterial streets, with minor arterial streets or collector streets at half-mile spacing, recognizing that existing development, streams and other natural features may limit the provision of these connections. The arterial street network is complemented by a well-connected system of collector and local streets.



This system of regional and local streets is multimodal in design, serving automobiles, motorcycles, trucks, transit, bicycles and pedestrians. The four-lane regional arterial street design reflects an optimal sizing for all of these modes, accommodating urban levels of traffic, while also allowing for safe and convenient bicycle and pedestrian travel and crossings at major intersections.

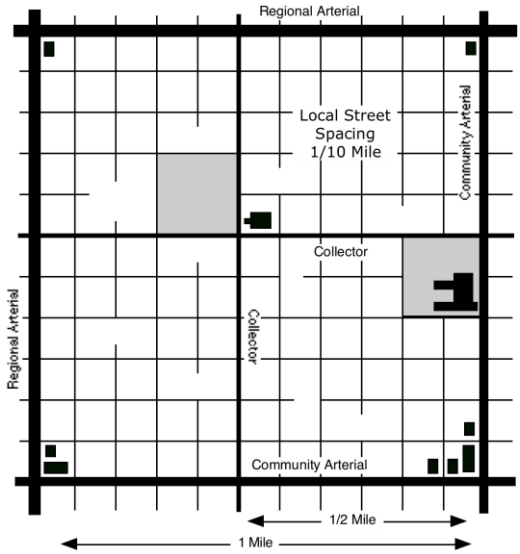
Under this construct, local streets and collectors are planned to consist of two-lanes with turn lanes, major arterials are planned to consist of four-lanes with turn lanes, throughways are planned to consist of six-lanes plus auxiliary lanes with grade separated interchanges or intersections. Therefore, before adding additional through lanes beyond the planned system, the 2035 RTP requires that plans and studies demonstrate the additional lanes do not compromise the function of the roadway for all travel modes.

Throughways usually span several jurisdictions and are of statewide importance linking the Metro area with points outside the region. Throughways typically consist of six through lanes, sometimes with auxiliary lanes, and grade–separated interchanges. These facilities serve as the workhorse for regional, statewide and interstate travel.

Throughways generally carry from 50,000 to 100,000 vehicles per day, providing for high-speed travel on longer motor vehicle trips and serving as the primary freight routes. Throughways connect major activity centers within the region, including the central city, regional centers, industrial areas and intermodal facilities.

Arterials provide for general mobility and connect major commercial, residential, industrial and institutional centers and link these areas to the throughway system. Arterial streets are usually spaced about one mile apart and are designed to accommodate trucks, automobiles, transit, bicycles and pedestrian. Arterial streets usually carry between 10,000 and 40,000 vehicles per day and allow higher speeds than collector and local streets.

Local and collector street connectivity provides community and neighborhood circulation. Although most are not part of the regional transportation system, they play an important supporting role. When local travel is restricted by a lack of connecting routes, local trips are forced onto regional facilities, impacting regional mobility.



Local jurisdictions are responsible for defining the network of local and collector streets within the mile-spacing grid of arterial streets. The RTP requires local street spacing of no more than 530 feet in new residential and mixed-use areas, and cul-de-sacs are limited to 200 feet in length to improve circulation. More frequent bike and pedestrian connections are required where collector and local streets are not possible.

Regional street design and placemaking concept

Regional street design concepts are intended to support regional and local implementation of the 2040 Growth Concept. The concept establishes guidelines for the physical design of the regional transportation system to foster livable communities throughout the region and encourage walking, bicycling and use of transit.

Streets perform many, often conflicting functions. Conflicts among travel modes need to be reconciled for the safety of all modes of travel. The design concepts promote community livability and mobility by balancing modes of travel and addressing the function and character of surrounding land uses. Linking land use and the physical design of transportation facilities is crucial to achieving state goals to limit reliance on any one mode of travel and to encourage walking, bicycling, carpooling, vanpooling, and use of transit.

The designs are based on Metro's Best Practices in Transportation Design handbooks, and vary depending on the intended function of the street and the land uses it serves. Consideration is given to various arterial designs, designs for pedestrians, bicyclists, transit, and trucks, and the link between street design and stormwater management.

Metro's Best Practices in Transportation Design handbooks provide tools to integrate street designs with nearby land uses and the environment.

Regional design classifications

Throughways are limited-access facilities that serve longer-distance motor vehicle and freight trips, providing for interstate, intrastate and cross-regional travel. Throughways are classified as a principal arterial and connect major activity centers within the region to one another and to destinations outside the region.

Regional boulevards are facilities typically consisting of four or more vehicle travel lanes, balanced multimodal function and a broad right of way. Features highly desirable on regional boulevards include on-street parking, bicycle lanes, narrower travel lanes than throughways, more intensive land use oriented to the street and wide sidewalk features that may include a landscaped median. The right of way ranges from 80 to 120 feet or greater. These facilities are located within the most intensely developed activity centers with development oriented to the street. These are primarily central city, regional centers, station communities, town centers and some main streets.

Regional streets are facilities consisting of four or more vehicle travel lanes, balanced multimodal function, broad right of way, limited on-street parking, wider travel lanes than boulevards, corridor land uses set back from the street, sidewalks with pedestrian buffering from the street, and a raised landscaped median with turn pockets at intersections. The right of way ranges from 80 to 100 feet or greater. These facilities are located within low-density inner and outer residential neighborhoods to more densely developed commercial corridors and employment centers where development is set back from the street. They can be within main street districts where buildings are oriented toward the street at major intersections and transit stops.

Community boulevards are facilities that generally consist of two vehicle travel lanes, balanced multimodal functions, narrower right of ways than a regional boulevard, landscaped medians, on-street parking, narrower travel lanes than throughways, more intensive land use oriented to the street and wide sidewalks. The right of way ranges from 61 to 98 feet or greater. These facilities are located within the most intensely developed activity centers with development oriented to the street. These are primarily central city and regional centers, town centers, station communities and some main streets.

Community streets are facilities consisting of two to four travel lanes, a balanced multimodal function, narrower right of way than regional streets, on-street parking, narrower or fewer travel lanes than regional streets, and residential neighborhood and corridor land uses set back from the street. These facilities provide a higher level of local access and street connectivity than regional streets. They have the greatest flexibility in cross-sectional elements. The right of way ranges from 60 to 80 feet or greater.

Designs for pedestrians, bicyclists and transit users

Street designs have a significant impact on people's ability to walk, bike and access public transit. Sidewalks and bikeways provide a route for non-motorized traffic and encourage walking and bicycling. Where appropriate, traffic calming measures such as narrower travel lanes, compact intersections and on-street parking can slow vehicle traffic and reduce traffic crashes for pedestrians, bicyclists, motorcyclists and motorists. The appropriate use of marked crosswalks, signs, signals and median islands make it easier for pedestrians and bicyclists to cross roads.

In addition, curb designs, ramps and crossing signals designed for the hearing and sight-impaired facilitate safe travel for people of all ages and abilities. Facilities and infrastructure such as street lighting, benches, waste containers, landscaped buffers that include trees, planters, lampposts and kiosks make the environment more attractive and create a sense of community and safety that encourages walking, bicycling and the use of transit. Well-designed sidewalks, benches, lighting, street trees and other urban design elements encourage more walking and provide for safe travel for people of all ages and abilities.

Designs for stormwater management and natural resource protection

The effect the public right-of-way has on the health of the natural environment, particularly urban waterways, is well documented. Streets, parking lots and driveways accounting for up to 65 percent of the total impervious surface area in the urban landscape. Street trees, vegetated swales and other green street treatments can intercept rainwater and convey stormwater in the public right-of-way adjacent to the region's streets. Refer to Metro's Green Streets handbook for more information on these designs.

A particular challenge is how to address conflicts between transportation facilities and wildlife and riparian corridors, and how transportation improvements can be located, designed and constructed to support riparian corridor and upland habitat protection plans. Infrastructure planning and design should first seek to avoid habitat conservation areas. Where that is not practicable, they should identify opportunities to mitigate the effects of transportation infrastructure. Where streets form barriers to wildlife movement, disruptions can be minimized through engineered solutions, such as wildlife-crossing devices and structures and incorporating corridor acquisition/restoration needs into transportation project development. Refer to Metro's Wildlife Crossings handbook for more information.

Local street design regulations

City and county street design standards shall allow implementation of:

- street designs consistent with Metro's Best Practices in Transportation Design guidelines;
- transit-supportive street designs that facilitate existing and planned transit service;
- pavement widths of less than 28 feet from curb to curb;
- sidewalk widths that include at least five feet of pedestrian through zones;
- landscaped pedestrian buffer strips, or paved furnishing zones of at least five feet, that include street trees;
- traffic calming devices, such as speed bumps and cushions, woonerfs and chicanes, to discourage traffic infiltration and excessive speeds;
- short and direct right-of-way routes and shared-use paths to connect residences with destinations;
- opportunities to extend streets in an incremental fashion, including posted notification on streets to be extended;

*For complete language, refer to the Regional Transportation Functional Plan (RTFP), section 3.08.110A & B.

Street connectivity regulations

To address arterial street connectivity standards, each city and county shall incorporate the following into its transportation system plan:

- A network of major arterial streets at one-mile spacing and minor arterials/collectors at half-mile spacing, to the extent practicable

To address local street connectivity standards, each city and county shall incorporate in their transportation system plan:

- A conceptual map of new streets for all contiguous areas of vacant and redevelopable lots and parcels of five acres or more that are zoned to allow residential or mixed-use development. If proposed residential or mixed-use development of five or more acres involves construction of a new street, the city and count shall require the applicant to provide a site plan that is consistent with regional connectivity standards (3.08.110 D,E)
- For redevelopment of contiguous lots and parcels less than five acres that require construction of new streets, cities and counties shall establish their own standards for local connectivity consistent with regional standards

To protect capacity, function, and safety in the vicinity of state highway interchanges, cities and counties shall:

- Restrict driveway access to the extent feasible
- Encourage public streets, though access may be limited to right-in/right-out.

*For complete language, refer to the RTFP 3.08.110 C,D,E,F,G.