



TRANSPORTATION POLICY PLAN

Chapter 3: Land Use and Local Planning

2040





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●	Introduction	3.3
●	Coordinating <i>Thrive MSP 2040</i> and Transportation Policy Plan	3.6
●	Coordination of Regional and Local Comprehensive Planning	3.7
	The Foundation for Land Use and Transportation	3.10
	Density and Diversification of Job Concentrations and Nodes along Transportation Corridors	3.12
	Local Government Land Use Policies Supporting Transit	3.15
	Bicycle and Pedestrian Planning	3.28
	Freight and Land Use Planning	3.31
	Airport and Land Use Compatibility Planning	3.31

Land Use and Local Planning

Introduction



Transportation and land use play off each other. Transportation infrastructure gives value to land and influences its use. Land use, in turn, creates demand for transportation investment. Over time, this cycle has produced the development patterns we see in the region today. The transportation system provides access to land and development for people and freight. Land use and development patterns create the origins and destinations that directly affect the demand for travel and the relative attractiveness of different travel modes, whether auto, transit, bicycling, or walking. The demand for access and mobility will continue to grow and change, as will the region's land uses over the next 30 years. How we provide that access and mobility will strongly influence the development patterns we leave for future generations.

Before the 1950s, most of the region developed with streets and sidewalks centered on the streetcar. Beginning in the 1950s, the development of the region's highway system and later the freeway system greatly accelerated geographic access to open land available for new development. Once there is access, an area develops relative to the availability of land for future development, its sewer capacity, and consumer demand and preferences. Essentially, demand for particular types of locations drives development patterns.

The post-1950s development patterns in the region consisted of large areas that developed at single-family home densities (about three to five units per acre), shaped in part by regional

roadways and local street networks. As the reach of the urban area expanded, highways and arterial roads were extended and widened to serve the growing demand.

With the high priority given to expanding roadway capacity to serve new development, the needs of pedestrians, bicycles, and transit users received less attention during and after the 1950s. Once established, residential land use patterns evolve slowly, particularly in areas that remain stable for generations. Consequently, changing existing land uses to increase density and intensity depends largely on adding connections among parts of the street and pathway networks and accommodating alternative modes of travel.

In contrast, job-related land uses change more frequently. Over the 30-year planning horizon of *Thrive MSP 2040* and the *2040 Transportation Policy Plan*, many job-related properties will change or be replaced due to structural, functional or economic obsolescence, opening opportunities for new mixed land uses and increased residential and job-related densities. These trends underscore the importance of local governments as they exercise their key role in making decisions about land use patterns and the local transportation network linking to the regional system.

There are opportunities for all types of communities to strengthen connections between land uses and transportation as the region changes in coming years. Communities at the developing edge can look long-term to adopt transportation plans for interconnected networks of streets and pedestrian and bicycle pathways that meet current and future needs of a fully developed community. Developed suburban communities with street patterns characterized by cul-de-sacs and a loosely connected street network can look for opportunities to retrofit their transportation networks to increase street connectivity. Transit service and pedestrian and bicycle pathways can support infill development and redevelopment of existing properties. Urban area communities that developed with a grid system can look for ways to use Complete Street practices to serve infill and redevelopment opportunities and take advantage of their existing connected transportation networks.



The existing regional growth pattern and funding limitations do not make it possible to expand the highway system in a sustainable way to address such issues as congestion, climate change, equity, and livability. Within the last decade, a marked increase in the value of locations in proximity to job concentrations and high-quality transitways has elevated the pace of private investment in the already developed parts of the region. The evidence is clearly visible along the METRO Blue Line LRT, which has been operating since 2004, the Northstar Commuter Rail (2009), the METRO Red Line BRT (mid-2013), and the METRO Green Line LRT (mid-2014). Development interest and higher-intensity land use are also showing up along proposed transit investments. On the local level, higher-intensity development and redevelopment is occurring throughout the already developed area and requires support with a multimodal network of local and collector streets, sidewalks, and bicycle paths. New growth is occurring, and will continue to occur, in the Suburban Edge and Emerging Suburban Edge communities, where sewered land is available. As local governments accommodate densities consistent with those established in *Thrive MSP 2040*, the resulting growth will continue to stress the regional highway system. Demand for additional highway capacity to relieve congestion and to serve the Suburban Edge and Emerging Suburban Edge communities is well beyond the available or realistic resources for transportation improvements. Consequently, this travel demand will require investments in arterial roads and strategic improvements to the regional highway system that address

congestion and safety and provide reliable options. Planning by local governments will also need to focus on incorporating multimodal travel, including transit, walking and bicycling, into land use and design.

Development can best support multimodal travel when communities plan their land use with knowledge of travel behavior and transportation infrastructure. Consistent with the land use policies identified in *Thrive MSP 2040*, this means:

- Supporting growth, particularly job growth, where job concentrations exist or in nodes along regional transportation corridors, either highway or transit
- Improving local street connectivity and using design principles of Complete Streets during planning and designing
- Planning for a complementary mix of land uses along corridors and in centers
- Locating medium-to-high density developments that include a mix of housing affordability at transit stations and along transit corridors
- Implementing travel-demand management programs and parking policies that support pedestrian and transit-friendly environments in high-activity areas, and
- Increasing overall density in nodes along corridors, in combination with the other strategies.

Another important consideration in coordinating transportation and land use surrounds the needs of freight users. The freight system has evolved in ways similar to other aspects of regional growth, with a heavy reliance on highway and arterial road travel. These users need to be considered in implementing local land use policy.

Users of the river and rail freight system are particularly vulnerable to land use changes away from warehousing and industrial areas, especially in the already developed parts of the region. Many of these areas are evolving to serve the growing demand for housing and commercial development, but the river and freight rail systems are already in place and cannot to move to other locations, even assuming alternatives were available. The issue is important because the region's economic competitiveness depends on preserving existing areas for freight operations.

In addition, local governments need to plan for an adequate supply of land suitable for freight uses in the future and consider the connections, especially the “last mile” connections, that trucks sometimes make on local streets with potential design conflicts for freight movement. The region's airport system also creates unique challenges for local governments land use planning (see “[Aviation Investment Direction and Plan](#) (Chapter 9)” for more information).

Details about specific investments for the transportation system are discussed in the [Finance chapter](#) (Chapter 4) and investment plans by mode.

Coordinating *Thrive MSP 2040* and Transportation Policy Plan

The coordination of planning for regional growth and planning for the region's transportation systems is accomplished through the regions's *Thrive MSP 2040* plan and this Transportation Policy Plan. The household, population, and job forecasts developed by the Council through *Thrive MSP 2040* provide the basis for regional planning for roads and highways, transit service, and wastewater infrastructure, and also inform planning for the Regional Parks System.

The household, population and job forecasts were developed in close coordination with the future transportation system described in the Transportation Policy Plan. The Council will update local forecasts as new land use and transportation policies emerge, and as new demographic data become available. More information on forecast development is available in *Thrive MSP 2040*. The forecasts and *Thrive MSP 2040* policies and land use strategies also serve as the springboard for planning by each community for its local infrastructure and land use needs. The local comprehensive plans must coordinate key elements: forecasted growth, planned land use, residential and employment densities and infrastructure plans.

Thrive MSP 2040 sets out seven overarching land use policies:

1. Orderly and efficient land use
2. Natural resources protection
3. Water sustainability
4. Housing affordability and choice
5. Access, mobility, and transportation choice
6. Economic competitiveness
7. Building in resilience

More details on these policies can be found in *Thrive MSP 2040* [Land Use Policy](#).

Decisions about how communities grow and the infrastructure to support them affect one another. Regional transportation and sewer investments help shape growth patterns, and vice versa. The types, locations, affordability, and density of housing influence mobility options and travel patterns.

The relationship between land use and transportation affects key outcomes established by *Thrive MSP 2040*. For instance, land use and development patterns have an enormous impact on the environment, including transportation's contribution to air pollution and climate change. Similarly, land use and development patterns affect the region's ability to be good stewards of transportation funding and put resources where they are most impactful toward regional outcomes. Also important is the overall, sustainable economic development of the region that provides prosperity for all parts of the region and all people in it. This section describes the important considerations for land use planning that impact the transportation system and local comprehensive planning for transportation.

Coordination of Regional and Local Comprehensive Planning

Local units of governments are on-the-ground partners in realizing the *Thrive MSP 2040* vision for growth and change, the *Thrive MSP 2040* Land Use Policy, and the Transportation Policy Plan. Under the Metropolitan Land Planning Act, local communities are required to adopt comprehensive plans that conform to the Council's three metropolitan system plans – for transportation (including aviation), wastewater treatment, and regional parks and open space. Comprehensive plans must also be consistent with the Council's policies in *Thrive MSP 2040* and its policy plans, including the Housing Policy Plan.

The local comprehensive plan is used by the region as a key element in local and regional partnerships to plan for growth across the seven-county region. Local plans ensure that adequate regional systems are planned and developed to serve growth in an orderly and efficient manner. There are also differing requirements for the different types of local governments. The majority of comprehensive planning responsibilities fall under the direction of cities and townships. This section focused primarily on those responsibilities. The unique requirements set forth in state statute for counties vary by county. State statute also applies solely to the seven-county Metropolitan Council jurisdiction and does not apply to the broader urbanized area that is covered by this plan under federal law.

Local comprehensive plans are reviewed by the Council for conformance with metropolitan system plans, consistency with Council policies, and compatibility with adjacent and affected governmental units (see statutory provisions below). Forecasts play an important role in the local and regional partnerships to accommodate growth and to see that adequate infrastructure is planned and developed. Below is a summary of the conformance, consistency, and adjacency components of comprehensive plans that result from the Transportation Policy Plan.

Conformance: A local comprehensive plan will conform with the metropolitan system plans if the local plan does not have a substantial impact on or contain a substantial departure from a system plan, based on the following provisions:

- Accurately incorporates and integrates the components of the metropolitan system plans required by Minn. Stat. sec. 473.851 to 473.871:
 1. Local plan recognizes the land use and transportation opportunities and challenges related to the community's designation in the *Thrive MSP 2040* Community Designations. Local plan accommodates growth forecasts at appropriate densities and numbers as articulate in adopted *Thrive MSP 2040* Community Designations, and wastewater and transportation system policy plans.
 2. Local plan identifies transportation components and characteristics of the regional existing and planned multimodal system including road functional classification, transitways and transit facilities and corridors, park-and-ride facilities, regional trails and bikeways, and right-of-way preservation needs.

3. Local plans must include airports, aviation facilities, noise and safety zones, and compatible land uses surrounding these features.
 4. Identification of existing and forecasted traffic volumes (current average daily traffic), number of lanes on roadways (principal and minor arterials), allocation of *Thrive MSP 2040* forecasts to transportation analysis zones (TAZs) and 2040 traffic forecasts for principal and minor arterials.
 5. Local plan includes adopted station-area planning for transitways and high-frequency transit corridors in service or in advanced planning stages including density minimums, targets, and land use mix that addresses guidelines for minimum activity level.
 6. Local plans adopt access management guidelines for principal and A-minor arterials.
- Integrates components of the local public facilities plan as described in Minn. Stat. sec. 473.859, subd. 3.
 1. Integrates development policies, compatible land uses, forecasted growth allocated to Traffic Assignment Zones (TAZs) at appropriate densities specified in *Thrive MSP 2040* for community designations and allocation of 2040 forecasts to TAZs for development and operation of the transit system to maximize the efficiency and effectiveness of the regional system.

Consistency: A local comprehensive plan will be consistent with Council policies and statutory requirements if the local plan:

- Addresses community role strategies for community designations contained in *Thrive MSP 2040*.
- Includes a plan for the implementation of an interconnected system of local streets, pedestrian, and bicycle facilities that is integrated with the regional system.
 1. Includes a plan for local roadway systems to minimize short trips on the regional highway system.
 2. Identifies needed local infrastructure (streets, pedestrian and bicycle facilities) to support connections to existing transitways and high-frequency bus corridors and those under project development.
 3. Identifies bicycle and pedestrian system needs and policies.
- Considers travel modes other than the car at all levels of development (site plan, subdivision, comprehensive planning) to better connect and integrate choices throughout all stages of planning. A Complete Streets policy is recommended to balance the needs of all users in transportation decision-making.
- Addresses job concentrations, nodes along corridors, and locally important centers and their connection to the regional transportation system, including use of travel demand management initiatives.
- Addresses the linkage of local land uses to local and regional transportation systems including a mix of uses and increasing housing unit and employment densities in regional job concentrations, in transitway station areas, and along high-frequency bus corridors.

- Creates and preserves a mix of housing affordability in transitway station areas.
- Addresses the needs of freight movement in and through the community (roadway, rail and waterway). Addresses accessibility to freight terminals and facilities, especially “last mile” connections that are often local streets connecting freight facilities to principal arterials.
- Includes an implementation plan that describes public programs, fiscal devices, and other specific actions for sequencing and staging the implementation of the comprehensive plan, to accommodate growth and change consistent with TAZ forecast allocations, and to ensure conformance with regional system plans, described in Minn. Stat. 473.859, subd. 4.
- Addresses official controls: Includes a Capital Improvements Program (sewers, parks, transportation, water supply and open space) that accommodates planned growth and change consistent with TAZ forecast allocations.
- Addresses state and regional goals for reducing greenhouse gas and air pollutant emissions.

Compatibility: A local comprehensive plan is compatible with adjacent and affected governmental units, including appropriate interconnection of county and local transportation networks of streets, bicycle pathways and pedestrian facilities, based on comments or concerns, or lack thereof, from these entities. A community should adequately document that it has acknowledged the concerns of all adjacent and affected governmental units.

- Addresses coordination of transitway station-area and high-frequency bus corridor planning with other communities along identified corridors.
- Addresses partners in communities, counties, and the region at large to coordinate transportation, pedestrian, bicycle, and trail connections within and between jurisdictional boundaries.

The Foundation for Land Use and Transportation

The local transportation system is an essential component of the daily movement of people and freight. The foundation of the transportation system and its most basic component is the street. Streets (or roads, highways, freeways) are provided in a variety of ways to meet different needs in the region. While the MnDOT is the primary provider and maintainer of major highways (or principal arterials), local governments are the primary providers and maintainers of minor arterials and other local roads. More details on the relationship between land use, the functional classification of roads, and highway interchanges are discussed in “[Highway Investment Direction and Plan](#) (Chapter 5)” and [Appendix D](#) and [Appendix E](#).



Roads, rivers and ports, freight railroads, transit, sidewalks, trails, and airports make up our region’s transportation framework. Every community in the region may not have each of these transportation elements, but every community does have roads, even though their purpose will vary depending on a community’s stage and form of development. Since very early times, roads have supported our travel – whether by foot, horse-drawn wagon or buggy, or – in the 20th century – automobile and truck. In recent history and today, roads have propagated auto-oriented travel and development

patterns, but they also support the transport of freight and people traveling in buses, on bicycles, by foot, and in wheelchairs or other assistive technologies. The road provides the support for all of these people and freight, along with important supplementary facilities within the road right-of-way, such as sidewalks and trails.

- For Urban Center, Urban, and Suburban communities, as defined by *Thrive MSP 2040*, local governments will continue providing an interconnected system of streets, sidewalks, and trails that considers all users, appropriately connects to the regional highway system, and is supported by the regional system of highways and transit. In these communities, changes to the regional transportation system will focus on adaptive improvements that better support the growing demand for multimodal travel while acknowledging the continued role of automobiles and trucks. These communities, especially those developed around the automobile, may or may not choose to diversify land use to reduce community dependence on cars.
- For Suburban Edge and Emerging Suburban Edge communities, local governments and developers will invest in new systems of streets, sidewalks, and trails, considering all users – people and freight – from the start. This should include a more deliberate approach of designing infrastructure to the scale of people instead of the automobile. The resulting change in development form will be driven by market desirability of these locations, local transportation investment, and land use planning.
- Rural areas will invest in highways and streets that are flexible for a variety of uses and connect them with Rural Centers and the urban and suburban areas within the Urban Service Area identified in *Thrive MSP 2040*. In rural areas, the emphasis will be on strengthening safe connections and less on large-scale transportation capacity.

In all areas, moving freight by truck will continue to be an essential consideration in planning and implementing a local transportation system and land use. Transportation is essential to the economic vitality of the region – both to people and to businesses. A well-designed, high-quality local transportation system directly benefits the functionality and affordability of freight. Also important will be the identification of important freight-accessible land that is vital for the region to protect and support. More detail on this is available in “[Freight Investment Direction](#) (Chapter 8).”

In the urban and suburban areas and rural centers, a diversity of land uses and densities creates various transportation needs. This diversity currently makes these areas attractive to some lifestyles. However, these lifestyles can change over time, and it is imperative that local governments and regional transportation providers balance their long-term approach by planning for an affordable, coordinated, multimodal transportation system.

The following sections focus on how growth can be directed toward nodes along corridors, resulting in orderly and efficient land use patterns.



Density and Diversification of Job Concentrations and Nodes along Transportation Corridors

The Metropolitan Council's *Land Use and Planning Resources Report*, completed in 2011, identifies and assesses the effectiveness of local and regional planning strategies and process for:

- Reducing air pollution
- Mitigating congestion
- Reducing costs for operating, maintaining, or improving infrastructure

The report emphasizes approaches that reduce or manage travel demand through land use and access to transportation options. The Council developed the report in collaboration with local governments. The report showed that local land use decisions can have a significant impact on travel behavior, congestion, air quality, greenhouse gases, and livability over time and that activity centers and their characteristics play an important role in this relationship. Several strategies have the greatest impact on travel behavior:

- Access to activity centers along transportation corridors
- Street design and connectivity of transportation networks
- Mixed land uses
- High-quality transit
- Density combined with other strategies
- Transportation management and parking

Research concludes that density alone is not as effective as density combined with other strategies, such as connections to activity centers, a high-quality local transportation network, a mix of land uses, and transit.

This Transportation Policy Plan places increased emphasis on linking regional transportation investments to providing or improving access to regional job concentrations. Details about this strategy are found in the investment directions and plans. Local land use decisions related to job concentrations, nodes along corridors, and local centers can further support the *Thrive MSP 2040*'s outcomes of stewardship, prosperity, equity, livability, and sustainability.

The following are local government strategies that will be supported through Metropolitan Council strategies to create opportunities that make the transportation-land use connection more productive.

Intensify and diversify land uses in regional job concentrations, nodes along transportation corridors, and local centers.

Increasing densities while diversifying the mix of land uses can strengthen accessibility and the efficiency of the region's transportation system. Regional job concentrations and nodes should be target areas for greater housing densities, including a mix of housing affordability, to balance the mix of job, housing, service, and retail activity in centers. An increased mix of land uses has been shown to decrease auto trips per capita relative to single use districts, where auto travel is often the only option for people.

It will be challenging for the region to create freestanding centers of mixed-use activity that can support a level of intensity that is comparable to diversifying areas where jobs and activity are already concentrated. These areas have commercial or industrial uses that may be attractive for redevelopment and are often targets for planned, mixed land uses. But the overall mix of uses in areas where jobs are concentrated and in nodes along corridors is more important than specifically supporting new mixed-use developments. Similar strategies can also be applied to local centers, whether in rural areas or as the focus of a local comprehensive plan.

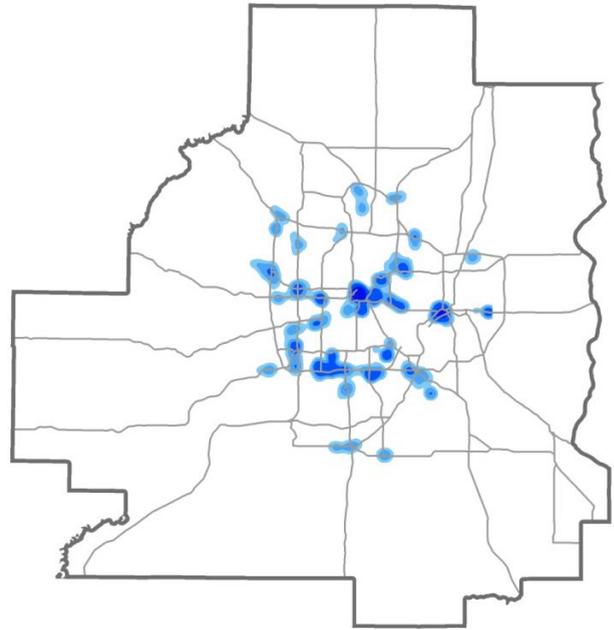


Figure 3-1: *Thrive MSP 2040* Illustrative Job Concentrations

Support density and a mix of uses with transportation and urban design strategies.

Research has shown that without additional strategies that address the travel experience to, from, and within centers, density and a mix of land uses will not translate to positive benefits in travel behavior, congestion, greenhouse gases, and air quality. There are a number of key implementation considerations for local governments:



- Provide for a dense network of arterials, local streets, sidewalks, and trails that support narrower streets and smaller intersections by distributing traffic more broadly, and create more opportunities to walk and bike. This approach will discourage the development of “super blocks” that discourage community cohesion and connectivity. Policies aligned with Complete Streets techniques are an important component of this strategy. This includes considering how truck freight access can be accommodated in the street network design, since narrower streets can cause mobility problems for trucks.
- Manage the demand for driving by exploring policies such as parking pricing, on-street parking management, shared parking facilities, and the elimination of parking minimums in zoning codes that may be requiring oversupply relative to what the market demands.
- Foster and implement good urban design through code regulations and design standards. Good urban design includes public infrastructure, such as the streetscape and public spaces, and private development including building form, mass and scale, building materials, and parking design and location.

These land use tactics for local government can be applied to regional job concentrations, nodes along corridors, and areas identified as local centers in comprehensive plans. More details on these strategies and additional resources for local governments are available in the Council’s [Land Use and Planning Resources Report](#).

The intensity of land use drives the cost-effectiveness of transit investments...the region will need a strong partnership with local governments to support transitway success.

Local Government Land Use Policies Supporting Transit

In “[Transit Investment Direction and Plan](#)”, there is a description of the conditions needed to support an effective transit system. An essential part of this discussion focuses on development patterns that occur locally and are planned and regulated by local governments. The Transit Market Areas described in “Transit Investment Direction and Plan” demonstrate that the urban core is best suited for all-day, frequent bus service, but Transit Market Areas I and II represent only about 6% of the region’s land area despite generating the majority of transit trips.

Much of the region developed around cars and is not well suited to be served by local bus routes. So the challenge in serving other regional communities will be shaping land use plans to align with the potential for future transit service. This section describes the elements of land use and development patterns that facilitate better transit service and describes how local governments should plan for these elements to set the stage for a positive market response that is leveraged to do more in response to transit investment and planning.

National experience has shown that development around transit must have both strong local government support and market demand to be successful. Land use and local development support are critical factors in prioritizing transitway investments, where the level of investment is substantial and long-lasting.

Local communities can plan for an efficient land use and development pattern that supports local transit or transitways. This is possible where local governments:

- Plan for density of population and activity
- Design for a pedestrian-friendly environment
- Encourage a mixed-use land use pattern
- Develop an interconnected street network that maximizes pedestrian and bicycle access and simple route design
- Support the development of housing affordability to populations likely to use transit
- Support travel options that encourage or compliment using transit
- Plan for linear growth in nodes along corridors



In a similar way that shaping land use can support transit successfully, transitways and high-frequency bus corridors can transform land use. The intensity of land use drives the cost-effectiveness of transit investments, particularly the ongoing cost to operate service. Regional transitway investments will need a strong partnership with local governments to support transitway success. Local governments will need to set the vision for land use around high-frequency bus and transitways and guide development and local infrastructure to implement this vision. This partnership between local governments and agencies planning and implementing transit will ensure that transit funding is invested prudently. Every potential station across a variety of communities in the region has unique opportunities, but they have to come together through corridor planning to ensure successful corridor investments. If local governments choose not to commit to transit-supportive development patterns, the Council’s stewardship of regional resources may limit its funding share for such corridors in the current revenue scenario.

The vision and the commitment to this vision should be expressed in local comprehensive plans and station-area plans and supported by local government strategies and investments. Local governments will also need to consider corridors and their relationship to adjacent communities, including potential extensions of existing high-frequency bus service.

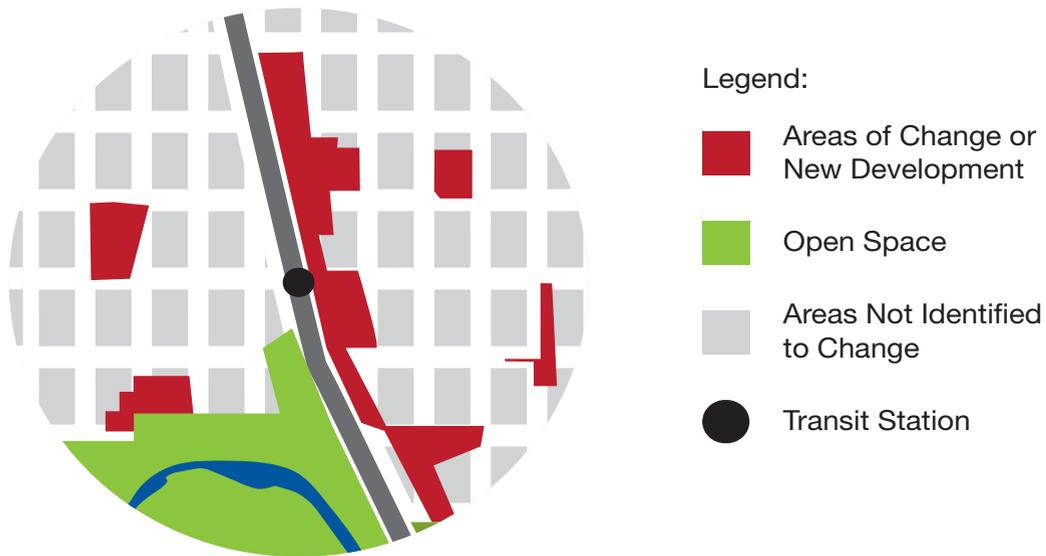
Generally, these connections will be most feasible in areas within and adjacent to Transit Market Area II, as described in “[Transit Investment Direction and Plan](#)”, although opportunities for suburb-to-suburb transit service could also be supported with strong local land use planning and implementation. An important factor for this type of service will be the focus on job concentrations.

Density requirements for transit are focused on housing in expected “areas of change” identified in the local comprehensive plan, including areas identified for new development and redevelopment.

Table 3-1 provides details on density expectations for new residential or mixed-use development around transit stations and around high-frequency transit service identified in the current revenue scenario and using the community designations in *Thrive MSP 2040*. Densities are described as the minimum average, across all areas, planned for new development and redevelopment within a station area or bus corridor, expressed as housing units per net acre. As described in *Thrive MSP 2040*, setting minimum average densities for new development and redevelopment provides communities with the flexibility to determine which areas are best suited for higher or lower density development under the framework of meeting that overall

minimum on available developable lands. An example of a typical station-area plan is provided in Figure 3-2, showing generalized land uses and areas of change. The table also provides an overview of other areas that local governments should be addressing through strategies that will support the density needed for transit, with more detail provided following the table. The Council will use various programs to support local governments in these efforts, as described later in this section.

Figure 3-2: Station-Area Land Use Plan Illustration Using 1/2 mile Radius



Areas of Change or New Development:

Residential or mixed-use in areas of change or new development

Areas Not Identified to Change:

Areas not identified to change including residential and non-residential areas.

Undevelopable land (transportation infrastructure, wetlands, public parks, steep grades, etc.)

Table 3-1: Local Government Land Use Planning Coordinated with Regional Transit Investments

For examples, see the [Land Use Illustrations](#) website.

Density for Transit Corridors Relative to Community Designation	Thrive MSP 2040 Community Designations			
	Urban Center	Urban	Suburban	Suburban Edge or Emerging Suburban Edge
Residential Density Average near Transitway Stations Serving Light Rail, Commuter Rail, and Highway Bus Rapid Transit – Density expectations represent average net densities near existing and new transit stations for areas of change that are identified for new development or redevelopment with some form of housing (housing or mixed-use).				
Minimum community-wide densities established in Thrive MSP 2040	20 units per acre	10 units per acre	5 units per acre	3-5 units per acre
Density expectations for fixed or dedicated rights-of-way transitway station area (area within 10-minute walk or ½ mile area)	Minimum: 50 units per acre	Minimum: 25 units per acre	Minimum: 20 units per acre	Minimum: 15 units per acre
	Target: 75-150+ units per acre	Target: 50-100+ units per acre	Target: 40-75+ units per acre	Target: 40-75+ units per acre
Density expectations for highway BRT transitway station area (area within 10-minute walk or ½ mile)	Minimum: 25 units per acre	Minimum: 12 units per acre	Minimum: 10 units per acre	Minimum: 8 units per acre
	Target: 40-75+ units per acre	Target: 25-50+ units per acre	Target: 20-40+ units per acre	Target: 20-40+ units per acre
Density expectations for arterial BRT station area (area within 5-minute walk or ¼ mile)	Minimum: 15 units per acre Target: 20-60+ units per acre			
Residential Density Average near Transit Service along High-Frequency Bus Corridors – Density expectations represent average net densities for areas of change that are identified for new development or redevelopment with some form of housing (housing or mixed-use).				
Density expectations for high-frequency bus corridor (area within 5-minute walk or ¼ mile)	Minimum: 10 units per acre Target: 15-60+ units per acre			

Diversity of activity at and around Transit Station Areas – The Council will review comprehensive plans for conformance to residential unit density, but job and activity density is equally important along a corridor. The Council will review station-area plans for consistency with activity level guidelines.

<p>Activity level of transitway station area (area within 10-minute walk or ½ mile)</p>	<p>Local governments should plan for a level of total “activity” near stations that is supportive of transitway investments. Activity can include residential units or residents, jobs, students, and retail and entertainment space that contribute to an overall level of activity. A guideline for minimum activity around a station would be 7,000 total residents, jobs, or students. In station areas with significant barriers or undevelopable land, this total can be adjusted proportionally (see discussion on Potential Constraints to Transit-Supportive Land Use).</p>
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Other Land Use and Development Considerations near Transit and Transitway Stations – Density and activity are important, but there are other considerations in development patterns that are a part of the user experience in attracting transit riders to the system.

<p>Best practices for land use and development planning and implementation</p>	<p>Develop a walkable street network that maximizes pedestrian and bicycle access and includes facilities for all users.</p> <p>Design for a pedestrian-friendly environment where streets foster an inviting experience on the way to transit.</p> <p>Plan for a mixed-use development pattern at stations and in corridors that complements overall corridor development and accommodates freight movement.</p> <p>Focus density in linear corridors and consider the relationship to adjacent communities and existing transit service.</p> <p>Manage parking supply and provide for other options such as shared cars and bicycle facilities.</p> <p>Create and preserve a mix of housing affordability.</p> <p>Incorporate civic and public or semi-public spaces.</p> <p>Protect and restore important natural resources in the station area.</p> <p>Address barriers to private investment by using financing mechanisms for public infrastructure, site preparation, affordable housing, and other areas that require gap funding.</p>
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The implementation of Table 3-2 will occur through a partnership of the Council, regional transit providers, and local (city and county) governments. Local governments may discover, through local comprehensive planning efforts, issues or concerns that will need to be addressed. The Council is committed to working with local governments to plan for land use that acknowledges the challenges that a local community is experiencing while respecting the need of the region to be good stewards of public investments.

The “[Transit Investment Direction and Plan](#)” (Chapter 6) includes transitway investment factors that will consider how committed local governments are to these guidelines when determining investment priorities. These considerations are also an important factor in federal New Starts and Small Starts project evaluation. Additional information can be found in the resource list.

Strategies for Local Government Land Use Planning Coordinated with Regional Transit Investments

The greatest influence on corridor development and readiness for transit service is having a long-range vision, community buy-in, and early community identification of potential supportive changes to land use patterns. Local governments should be proactive in planning for transit service so that their plans can help shape transit investment. This will promote integrating land use with transit development for existing transit service, new service, and potential transitway station locations. Planning for station areas and corridors assists local governments in preparing for and maximizing the development benefits of transit investments.

Station-area plans need to take into account a variety of factors that may include community transportation and circulation issues, urban design guidelines, and public infrastructure that will make for a high-quality transit-oriented development and a mix of housing affordability. These plans provide the means to coordinate land use and transportation at the community level and with other communities served by the corridor. Development potential may be influenced by the local role a station is intended to perform and its role in regional economy.



Encourage population and activity density. Overall community density sets the background pattern for transitway and high-frequency service and potential. Planning for minimum and target densities ensures that the market for development is not diminished by government regulation. Market demand will be an important factor in how much allowable development is realized and when. The effect of the overall development pattern in a community and along corridors is the critical factor in the transit system’s success and funding sustainability. Effective density is also closely linked to a supportive local network of streets, sidewalks and bicycle pathways and to a mix of compatible uses ([Thrive Community Designations](#)).

Minimum densities and targets for station areas are linked to community designations and their potential relative to existing development patterns. Compact, high-density development supports the region's investment in frequent transit service and a greater variety of routes, resulting in more transportation options, less time on the road, and alleviated traffic congestion. Expanded transportation choices can also reduce the combined cost of housing and transportation, allowing households to spend their income on other consumer needs (including housing costs). At the same time, well-designed compact development contributes to vibrant, economically healthy neighborhoods that offer a variety of goods and services, social gathering places, recreation and entertainment opportunities, and attractive character.

Each community along a transit corridor or future transit corridor needs to create its local vision for the shared corridor. In addition to planning for appropriate densities, local governments should plan for a level of total activity near stations that is supportive of transitway investments. Activity can include residential units, daytime population, jobs, students, and retail and entertainment space that contribute to an overall level of activity. A guideline for minimal activity is 7,000 total residents, jobs, or students.

Plan for a mixed-use development pattern. Residential density alone cannot ensure the ridership needed to sustain investments in transitways. It is important for station areas to serve a diversity of uses, scaled to meet community needs and the station's role in corridor development. Communities along a corridor should coordinate their plans and development expectations (timing, uses and scale) with each other and transit service providers. Higher development intensity should be nearest the transit station, tapering off near the edges of the defined transit-oriented development area.

Every transit journey starts with walking, so pedestrian-friendly station areas are necessary for every successful transitway. To this end, it is essential that local governments adopt measures in their comprehensive plans, station-area plans, and other local controls to guide land uses that support transit ridership and prevent new or significantly expanded uses and development forms that discourage transit use and human-scale design resulting in inefficient use of regional transit funding.

Table 3-2 lists example uses and development forms that are generally considered to either support the goal of creating an active pedestrian environment that supports transit ridership, or lead to an auto-oriented environments less supportive of pedestrians and transit.¹ These types of uses and development forms (or similar) should be considered during the development of comprehensive plans, station-area plans, and other local land use controls that implement plans, especially for new standalone uses in the area immediately surrounding the transit station (within one block of stations). The Council expects local governments to guide transit-supportive uses and forms and prohibit the increase in auto-oriented uses or form around transitway station areas.

¹ Pedestrian & Transit Oriented Design, Reid Ewing and Keith Bartholomew, Urban Land Institute, 2013. Figure 4-1, page 56.

Table 3-2: Station-Area Land Use and Development Forms to Support an Active Pedestrian Environment and an Effective Transit System

Recommendation to Support Effective Transit	Uses	Development Forms
Include or Encourage in Station-Area Plans	<ul style="list-style-type: none"> • Multifamily and small-lot residential units that support a mix of housing affordability • Office space • Hotels • Cultural and public institutions • Health care facilities and clinics • Retail, services, and restaurants • Entertainment facilities • Post-secondary education 	<ul style="list-style-type: none"> • Maximize building frontage on the street • Varied, human-scale building design, including transparent surfaces • Landscaping, pedestrian lighting, sidewalks
Restrict or Discourage as Standalone in Station-Area Plans Transit Stations	<ul style="list-style-type: none"> • Surface parking lots (excluding park-and-ride lots)¹ • Distribution warehouses • Personal storage facilities • Outdoor storage facilities • Salvage yards • Motor vehicle sales • Motor vehicle fueling, servicing and repairs, including car washes 	<ul style="list-style-type: none"> • Off-street parking located between the building and the sidewalk • Drive-thru lanes located between the building and the sidewalk • Opaque surfaces of any kind constituting more than 60% of any building surface facing a street at eye level

¹ While surface parking lots are included in the list of discouraged standalone uses, surface park-and-ride lots near stations are acceptable as an interim use and structured parking may be acceptable as a long-term use near transit station areas.

All of the listed uses in Table 3-2 involve the provision of valuable goods and services. None of them are intrinsically “bad.” However, the traditional forms of discouraged uses make it difficult to contribute to the activity levels and pedestrian environment needed to support transit investments. An area with a good pedestrian experience will possess many other design features, which are discussed later in this section ([Bicycle and Pedestrian Planning](#)). A more complete discussion of transit-supportive uses and development form can be found in the Council’s [Transit-oriented Development Guide](#).

It essential that local governments implement these minimum land use controls and standards in areas of change around transitway station areas as soon as the transit investments are identified. A transit-oriented development overlay zoning district is one way of protecting against detrimental land uses and building forms on an interim basis until more detailed station-area plans and permanent local controls can be developed and adopted. Examples of transit-oriented

development overlay district language, as an example for local governments, can be found in the Transit-oriented Development Guide. Station-area plans and official controls are to be developed and adopted during transitway engineering. To facilitate the documentation of these plans, communities should identify “Transit Oriented Development Districts” or similar districts within the Land Use element of their Comprehensive Plans to identify the areas addressed through station-area planning.

Develop an interconnected street network that maximizes pedestrian and bicycle access and allows for simple route design. Local connectivity for pedestrians and bicycles, along with streetscape design, are important factors for determining housing and job densities. A network of Complete Streets that are friendly to all modes with streetscape and street-level design standards or guidelines should be standard around stations and provide the necessary local system of access. Sidewalks, trails, and bicycle facilities are an important part of this local system. Transit riders need safe and convenient routes to get to and from transit. Riders will typically walk one-half mile (about a 10-minute walk for most people) to and from transit.

Design for a pedestrian and bicycle-friendly environment. Street design guidelines should be adopted that improve the user experience for pedestrians and bicyclists by calming traffic, narrowing crossings, and improving the amenities and design of areas along and abutting the street. Design guidelines may also need to consider unique or flexible ways to accommodate freight traffic in and through these areas.

Accommodate freight movements. The design of station areas will also need to accommodate trucks that bring freight and goods into walkable, mixed-use areas. Transit-oriented developments can be served without creating unsafe conditions for pedestrians and bicyclists by designing in “back-door” service areas and secondary streets and alleys to separate truck movements from the main flow of pedestrian traffic, and by designing specific streets to accommodate the appropriate controls and vehicles for the anticipated levels of truck traffic.

Manage parking supply and support travel options. While inclusive of the car, transit-oriented development is about combining compact development composed of a variety of uses and access modes. To improve the efficiency of land use, minimum densities should be followed in conjunction with a parking strategy. The strategy should consider reducing or eliminating parking minimums, shared-parking programs, and parking design guidelines.

Create and preserve a mix of housing affordability. Plans for station areas and stops that include residential uses should incorporate policies for mix of housing types and affordability. As station area and corridor plans evolve from vision and development concepts to formally adopted elements of the local comprehensive plan, each stage should develop strategies to create and/or preserve a mix of housing affordability and the inclusion of affordable units in new residential projects where necessary to provide the full range of housing options. Guidance on how to develop an effective mix of housing affordability is available in the [Housing Policy Plan](#) and will be available in the [Local Planning Handbook](#).

Incorporate civic and public spaces. Integrate public art and civic spaces and facilities that reflect community history and culture into station areas and include community gathering spaces use. Parks and green space are also important to include.

Protect and restore important natural resources. Important natural resources around a transit station or in transit corridors are important to protect or restore, especially when increased development intensity will put pressure on natural areas. Exploring increased density on developable land can help protect important natural resources while providing valuable access to green space in dense areas.



Address barriers to leverage private market investment. Local governments should consider using financing mechanisms for public infrastructure, site preparation, affordable housing, and other areas that require gap funding to support regional and local goals for station area development. Development incentives should be targeted toward areas of change and new development.

Council Programs Supporting Transit-Oriented Development

Metropolitan Council programs and policies can assist local governments in achieving the land use policies in *Thrive MSP 2040* and the Transportation Policy Plan. The Council’s Livable Communities grant program is available to fund community investment that revitalizes economies, creates affordable housing, and links different land uses and transportation. The voluntary, incentive-based approach of the Livable Communities program leverages partnerships and shared resources to help communities achieve their regional and local goals. The Council awards grants through four categories:

- *Tax base Revitalization Account:* Cleans up contaminated sites for redevelopment that creates jobs and/or produces affordable housing.
- *Livable Communities Demonstration Account:* Supports development and redevelopment that links housing, jobs, and services and demonstrates efficient and cost-effective use of land and infrastructure.
- *Local Housing Initiatives Account:* Produces and preserves affordable housing choices for low to moderate incomes.
- *Transit Oriented Development:* Catalyzes development around light rail, commuter rail, and high frequency bus stations.

More information on these grant programs is available on the Council’s website (metro council.org).

The Council also recently created a transit oriented development policy in late 2013 that provides a framework for the Council to play a leadership role in planning and implementing transit oriented development throughout the region. The Council's transit oriented development department supports the implementation of this policy.

Potential Constraints to Transit-Supportive Land Use

There are a number of potential constraints to development potential around transit investments. These constraints will need to be discussed in collaboration with local governments to the extent that they may inhibit the feasibility of planning for land use that supports transit. Examples of these constraints include:

- **Market Potential** – Local governments and the region are able to set the stage for development by doing land use planning, making investments in infrastructure, and providing other forms of support. However, the most important component of land development is market potential, which takes into account a number of other factors beyond planning and infrastructure. Many of these factors cannot be controlled by government, although it is helpful to understand these constraints when doing planning. Market studies that are community-specific, corridor-specific, or even broader, are encouraged.
- **Developable Land** – The potential for transformation around station areas will be limited by the amount of land that can be developed or redeveloped. This may depend on site configurations, barriers to transit access, external factors such as major utility lines or natural resources areas, or other potential constraints that will depend on local conditions.

This list of constraints is not exhaustive, nor do all the constraints exist throughout the region. They are potential considerations for the realistic implementation of the land use policies in the Transportation Policy Plan.

Transitway Commitments and the Timing of Land Use Planning

It is important to acknowledge that many communities will require significant retrofitting in order to achieve development results that are supportive of transit. Transitways require a substantial planning process that can leave local governments with uncertainty about specific project details, such as station locations, and the timing of investments. The process of planning land use and transit investments will be iterative. However uncertain transit investments are, land use planning represents a long-term outlook that also informs transit planning. The following table describes the steps local governments can take prior to a transit commitment (such as a locally preferred alternative). Once a transitway or high-frequency route is in the current revenue scenario of the Transportation Policy Plan, the expectations become more explicit, as described in Table 3-3. Communities along corridors in the increased revenue scenario can still be proactive in land use planning, similar to the actions described prior to transit commitments in the current revenue scenario.

Consistent with the Council’s vision, the Council will review planned transitways with considerations for a mix of housing affordability in station areas. In addition, local governments along a transitway intending to apply for federal New Starts and Small Starts funding through the Federal Transit Administration should plan early to address the affordable housing components of the scoring evaluation criteria. The federal criteria assess the existing supply of legally-binding affordable housing, as well as local plans and policies to preserve or increase affordable housing.

Table 3-3: Local Government Land Use Planning Related to Transit Commitment

Local Comprehensive Plan Element	Prior to Transit Commitment in Current Revenue Scenario	After Transit Commitment in Current Revenue Scenario
Land Use	<ul style="list-style-type: none"> • Set vision for potential/future transit corridors with goals for land use patterns that can grow into transit-supportive densities and nodes of activity. • Guide medium- and high-density housing that includes a mix of housing affordability and mixed-use development to areas along these corridors. • Consider potential transit alignments. • Work with agencies leading transit planning to identify important existing and planned transit opportunities. • Develop strategies to create and preserve a mix of housing affordability, particularly in areas where land values are likely to escalate after the transit commitment. 	<ul style="list-style-type: none"> • Adopt station area or corridor plans with an investment and regulatory framework to guide implementation. • Set density levels for new development that conform to minimums in the Transportation Policy Plan and opportunities for targeting higher densities. • Implement plans and policies to preserve and increase affordable housing within an overall mix of housing affordability. • Target property acquisition, rehabilitation, and development funding for a mix of housing affordability, including housing affordable to low- and moderate income households, along the corridor.
Local Transportation	<ul style="list-style-type: none"> • Adopt community-wide policies for Complete Streets and pedestrian facilities and bicycle facilities. • Identify needed local transportation improvements to support land use vision in comprehensive plan. 	<ul style="list-style-type: none"> • Implement identified segments that provide an interconnected local transportation network serving the station or corridor. • Adopt transit-oriented development policies to guide development, including travel demand management.

This plan describes some general considerations for local governments doing this type of planning, but the Council will provide more specific guidance through an update of the [Transit-Oriented Development Guide](#), the [Local Planning Handbook](#), and other tools and resources. The following section includes some potential interim resources for planning around transit.

Resource List for Land Use Planning Around Transit

Transit-Oriented Development Planning Resources:

- [Guidelines for Land Use and Economic Development Effects for New Starts and Small Starts Projects](#). Federal Transit Administration, August 2013.
- [Transit-Oriented Development: TOD – Guides, Studies, and Articles; TOD and Market Forces; TOD Programs; TOD Plan and Ordinance Examples; Financing TOD](#). Municipal Resource and Service Center of Washington.
- [Growing Station Areas—The Variety and Potential of Transit Oriented Development in Metro Boston](#). Metropolitan Planning Council. June 2012.
- [Planning for Transit-Oriented Development: A Practitioner’s Guide](#). Federal Transit Administration, June 2014.

Transit Overlay Zones (including parking requirement bonus reductions):

- [Housing Innovations Program. Featured Tool: Transit Development Overlays](#). Puget Sound Regional Council.

Affordable Housing:

- [Mixed-Income Housing Near Transit—Increasing Affordability With Location Efficiency](#). Center for Transit-Oriented Development.

Corridor Planning:

- TOD 203. [Transit Corridors and TOD—Connecting the Dots](#). Center for Transit-Oriented Development.

Parking Management:

- [Shared Parking](#). Portland Metro.
- [Right Size Parking](#). King County Metro.
- **Travel Demand Management:**
- [DRCOG Regional TDM Short Range Plan \(2012-2016\)](#). Denver Regional Council of Governments, June 2012.

Complete Streets:

- [Complete Streets Resource Toolkit](#). Sacramento Area Council of Governments, September 2014.
- [Urban Street Design Guide](#). National Association of City Transportation Officials.

Bicycle and Pedestrian Planning

Bike and pedestrian infrastructure is most commonly provided by local governments and often integrated with local land use development. Local governments should consider the regional role of these local systems when doing comprehensive planning and implementing plans.

Bicycle Considerations

Bicycle infrastructure is an important consideration for both on-street and off-street options where bicycle travel is encouraged. Local governments should consider Complete Streets policies for all roads in their jurisdiction as a tool to not exclude bicycles in the design of streets. In addition to serving local travel, local bicycle systems should provide important connections to regional systems, including:

- Priority Regional Bicycle Transportation Corridors and the Regional Bicycle Transportation Network ([Bicycle and Pedestrian Investment Direction](#))
- Regional Parks and Trails ([Regional Parks Policy Plan](#))
- High-frequency arterial transit corridors, transitway stations, transit centers, bus stops, and park-and-ride facilities (“[Transit Investment Direction and Plan](#)”)



The region’s bikeways would be easier to navigate with better wayfinding information for regional trails and bikeways. Wayfinding is a system of signs designed to direct cyclists to important regional or local points of interest. When planning for local trails systems and when implementing the Regional Bicycle Transportation Network, local agencies should consider including wayfinding systems to assist cyclists in finding important regional destinations and activity clusters. Routing through wayfinding can be especially effective where there are missing or unclear connections between jurisdictions.

Local governments should also identify gaps and barriers in the bicycle system through comprehensive planning and have a plan to address them. Bicycle parking and internal circulation may also need to be addressed at high-activity areas such as job concentrations, nodes, or local centers. The design, implementation, and maintenance of bicycle facilities should provide for a safe, comfortable, and convenient travel option in communities.

Pedestrian Considerations

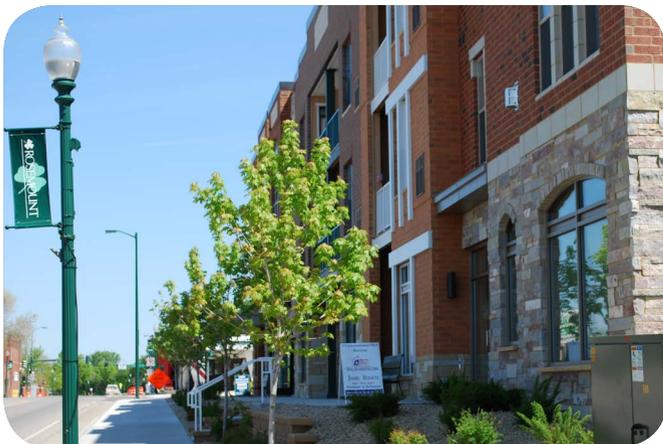
Pedestrian connections are one of the most fundamental parts of a multimodal transportation system in the Urban and Suburban area, as well as Rural Centers, where destinations and activity are located closer together than in the rural areas. Many people start and end their trips as pedestrians. Like bicycles, a potentially important planning consideration for pedestrians is adopting and putting into practice a complete streets policy. Planning for pedestrians is also integrally related to regional system planning. Local governments should provide and maintain pedestrian access to:

- Regional Parks and Trails ([Regional Parks Policy Plan](#))
- High-frequency arterial transit corridors, transitway stations, transit centers, bus stops, and park-and-ride facilities (“[Transit Investment Direction and Plan](#)”)

A pedestrian-friendly environment is also a key strategy for successful dense, mixed-use areas, where pedestrian activity is often the highest.

Planning for a pedestrian-friendly environment goes further than just providing access and infrastructure. The pedestrian environment is integrated with design. Good pedestrian facilities incorporate best practices that provide for a safe, comfortable, and convenient space to walk. When people are walking, they experience the streetscape in a different way than faster moving modes such as a car or bus. Local governments should consider the design and form of buildings that are adjacent to the pedestrian system, the need for street greening and shade with trees and planters, lighting and other safety elements, the proximity and speed of adjacent auto traffic, crossing facilities, signage, and other relevant elements identified through local planning.

Another element for local agencies to consider when planning for areas of high pedestrian activity is wayfinding – the system of signs used to direct pedestrians to important points of interest. Local planners should consider planning and implementing wayfinding systems where there are high levels of pedestrian traffic (for example, a local or regional trail, public plazas, historic districts) and clusters of highly visited destinations. Routing through wayfinding systems can be especially effective in directing pedestrians from a prominent regional or local trail to a commercial district, neighborhood center, or areas of entertainment or special interest.



Elements of a Good Pedestrian Experience:

Well-designed, well-maintained, safe, and secure pedestrian facilities – Sidewalks are the key building block of a local pedestrian system. They should be well-designed with appropriate widths, buffered with either parking, trees, or landscaping/grass, and maintained and kept clear of debris, snow, and ice. Also important are quality lighting, connections to land use (“eyes on the street”), traffic calming considerations including reduced turning speeds of vehicles, and traffic signals that are well-timed with considerations for pedestrians. Accessibility for all users should be integral in the design of these facilities.

Access to a mix of destinations and uses – Diverse environments attract people on foot. A successful pedestrian environment provides access to a mix of complementary uses that can include housing, neighborhood services and shopping, offices and jobs, schools, libraries, parks and civic space, and recreational facilities. This can also include connections to other modes, including bicycle facilities, transit, and well-connected parking facilities.

Manageable walking distances and crossings – A comfortable walking distance is five to ten minutes or about one quarter to one half mile (1,250 feet to 2,500 feet). The distance a person will walk varies based on the street pattern and presence of natural or man-made barriers. Wide streets and infrequent safe crossings are some of the most common barriers for pedestrians to navigate. A successful pedestrian environment addresses crossing distances by shortening them through design (for example, narrower streets, curb extensions), providing comfortable median refuges and curbside waiting areas, and creating a visual connection across the street through pavement markings, signs, or other design elements. Safe crossings can be provided at midblock locations, where appropriate, to support direct connections for pedestrians.

A human-scale and visually interesting environment – Pedestrians experience their environment at a slower, more human-scale pace than drivers. A visually interesting and inviting pedestrian environment can increase pedestrian activity. Some key elements of a human-scale environment include landscaping, signs, and benches. However, building design and open space have the largest impact on pedestrian-scaled environments. Good pedestrian design includes quality architecture and varied facades (for example, number of doors and windows, architectural elements), buildings that face the street and line the sidewalk with minimal setbacks, parking located to the back or side, connections to public art and civic and open space.



Protection from climate and environment – A successful pedestrian environment recognizes that the pedestrian is exposed to the elements. This can be softened by providing trees for shade and protection from rain and wind. Buildings can be oriented and located closer to the sidewalk and design elements can provide refuge for pedestrians. A buffer between pedestrians and auto traffic reduces the impacts of noise, pollution, and dirt.

Freight and Land Use Planning

The “[Freight Investment Direction](#)” (Chapter 8) includes additional information on planning for land uses that are adjacent to freight corridors or facilities. The section also discusses the importance of planning for the long-term preservation of freight facilities through planning and considering the needs of freight as land uses change over time, particularly last-mile access to mixed-use or commercial areas.

Airport and Land Use Compatibility Planning

Most of the land surrounding the system airports now consists of built up areas or land zoned for urban uses, while Lake Elmo and Airlake are the only airports that have adjacent rural land use areas. There has been a rapid transition of urban development which is enveloping land around Anoka County-Blaine and Forest Lake airports.

The Council has implemented land use compatibility guidelines for aircraft noise as a preventative measure to help communities control expanded development of sensitive land uses around airports. Communities use corrective land use measures to help mitigate noise in areas with existing development that is incompatible with designated noise levels. The definition and application of the guidelines are found in [Appendix L](#), along with revised noise contours for each airport.

Additional details on land use compatibility planning with respect to airports and airspace considerations are provided in the “[Aviation Investment Direction and Plan](#)” (Chapter 9).