

Chapter 3: Transportation Element

BACKGROUND AND CONTEXT

The Transportation Element ensures that the City's transportation system supports land uses envisioned by the Comprehensive Plan. The Transportation Element is supported by and inter-connected with many other elements of the Comprehensive Plan. In particular, the transportation system needs to be designed and sized appropriately to support the planned densities described in the Land Use Element. In addition to providing sufficient capacity for a fully functional multi-modal transportation system, consistent with the Plan's framework goals and emphasis on sustainability and healthy communities, transportation goals and policies also include measures to help reduce air pollution, and promote active transportation.

People in Des Moines currently rely on driving versus walking, biking, and taking transit to travel in and out of the city. It is the City's vision to create and maintain an efficient and safe multi-modal transportation system that provides mobility for all users – residents, businesses, employees, students and visitors. The transportation system not only affects the quality of life for residents, but also the City's economic vitality. The entire community relies on the system to get people where they want to go, to bring goods to and from the community, connect people to the services they need, and provide the network for critical emergency services. The transportation system is the backbone of the community, and it defines the character of our City.



Des Moines' transportation system is comprised of several features, including streets, sidewalks, bicycle facilities, trails, state highways, King County Metro transit, and by 2023 Sound Transit light rail services. These components cross or overlap jurisdictional boundaries. For example, King County Metro Transit operates its buses within Des Moines, and relies on the City's streets and traffic signal systems to deliver these services. The City's responsibility is to provide a reasonably safe, efficient, and dependable transportation system for residents and businesses.

The City Council's Transportation Vision for the City is supported by nine Goals. These goals will guide the City's decisions about projects and funding ensuring that the Transportation Vision is reached.

Each community has a set of values – specific community characteristics that they intrinsically value. These values are rarely written down but they are reflected by the people who are elected to represent the community and by the City's adopted goals and policies. Community values – such as mobility, safe streets and neighborhoods, frequent transit service, convenient parking – are reflected in the City's overarching vision for the transportation system and supported by goals, policies, and strategies. For

the City, planning for the future involves understanding what is likely to happen and identifying ways to manage that change.

The following figures provide information in support of the Transportation Element:

Figure 3-1 Growth in Employment (2008-2030)

Figure 3-2 Growth in Households (2008-2030)

Figure 3-3 Intersection and Street Widening Projects (Capacity Projects)

Figure 3-4 Safety and Operations Projects

Figure 3-5 Future Transit Network

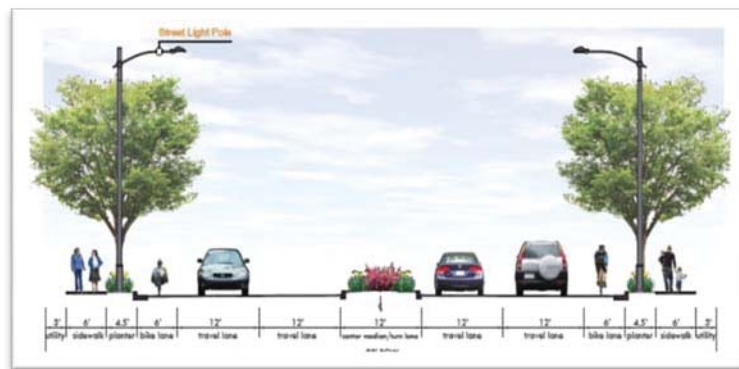
Figure 3-6 Priority Pedestrian Network

Figure 3-7 Recommended Bicycle System

The Future Transportation System

The City of Des Moines should be prepared to see substantial change over the next 20 years. Growth along the Pacific Highway South corridor, the Des Moines Creek Business Park development, and expansion of Highline College are just a few of the planned activities within the City that will provide new opportunities for housing and employment.

Forecast population and employment growth will add vehicle, transit, and personal trip demand to the transportation network within the City. Understanding the future nature and volume of traffic in the



City of Des Moines as well as the region, makes it possible to identify transportation issues and to suggest appropriate facility improvements to meet the demands. The City has developed a Comprehensive Transportation Plan to help prepare for the future.

Comprehensive Transportation Plan (CTP)

The Growth Management Act (GMA) specifies several minimum requirements that must be included in the Transportation Element of the City's Comprehensive Plan. These include (1) land use assumptions used in estimating travel, (2) estimated traffic impacts to state-owned transportation facilities, (3) level of service standards (LOS), (4) identification of improvements that correct deficiencies and meet future needs, (5) multi-year financing plans and policies, (6) strategies for intergovernmental coordination, and (7) demand-management strategies.

The CTP adopted by Ordinance #1458 on June 11, 2009 was developed with the intent to meet the requirements of the GMA found in RCW 36.70A.070 (6), and all of these GMA requirements have been

met through the City of Des Moines CTP effort. The CTP, as may be amended from time to time, is therefore adopted by reference to the Transportation Element. The CTP is posted and available on the City's website. The City is currently planning to perform a minor update to the CTP in 2015. Appendix B – Transportation Capacity and Growth Assumptions – 2009 CTP summarizes some of the key information that will be updated as well as provides a comparison to the revised growth targets for 2035 being used as the basis for the Comprehensive Plan.

The CTP was developed with the intent to preserve the quality of life for residents and to support a viable economic future for the City. The City Council and staff will use the CTP to make decisions regarding future transportation investments.

The CTP is consistent with the Land Use Element. The land use assumptions used in estimating travel demand are described in Chapter 4 of the CTP. The resulting growth in employment and housing are included in Figures 3-1 and 3-2 at the end of this Chapter. The City completed an inventory and evaluation of the existing transportation facilities and services and established LOS standards, and developed an estimate of the traffic impacts resulting from the growth assumptions. Specific actions and improvements necessary to accommodate the City's planned growth and meet the LOS standard were identified in the CTP. In compliance with the GMA, the CTP addresses traffic growth out to the year 2030 (more than the 10 year requirement). See Appendix B for the 2035 growth comparisons. The CTP provides a financing plan, demand management strategies, and includes a pedestrian and bicycle component. The CTP which is developed for and reflects the values of the community was created in collaboration with stakeholders. The community outreach program provided a variety of forums for stakeholders to learn about the CTP and provide feedback to the City.

The policies and strategies in the Transportation Element of the City of Des Moines Comprehensive Plan are a summary of the CTP's findings, goals, and policies.

Level of Service Standard

The GMA requires the City to establish service levels for the street network and to provide a means for correcting current deficiencies and meeting future needs. The term "level of service" (LOS) is used to define a way to measure the operational performance of a street or intersection. LOS considers the perception by drivers in terms of speed, travel time, the freedom to maneuver, traffic interruptions and delays, and comfort and convenience.

The City uses the LOS as defined in the Highway Capacity Manual (HCM). Supporting information on LOS can also be found in 'A Policy on Geometric Design of Highways and Streets' (commonly referred to as *The Green Book*) published by the American Association of State Highway and Transportation Officials (AASHTO).

The LOS for the City of Des Moines (based on the AM or the PM peak hour) is LOS D, with exceptions for selected intersections along major arterials and in the Marina District, which may operate at LOS E or LOS F. Locations with a LOS F standard include the intersections of South 216th Street and Pacific Highway South, Kent Des Moines Road and Pacific Highway South, and Redondo Way and Redondo Beach Drive. Intersections with a LOS E standard include the Marina District intersections along 7th Avenue South and Marine View Drive between Des Moines Memorial Drive and Kent-Des Moines Road and the SR 99 intersections of South 220th Street/Pacific Highway South and South 224th Street/Pacific Highway South. In addition, all signalized intersections must not exceed an X_c of 1.0 using a 120 second cycle length. However, the intersection of Kent Des Moines Road/Pacific Highway may operate at an X_c equal to 1.2 using a 150 second cycle length.

What is X_c ?

X_c is a measure of the critical volume to capacity (v/c) ratio for the approach lane groups that have the highest flow ratio (v/s) for a given phase. For example, with a two-phase signal, opposing lane groups move during the same green time. Generally, one of these two lane groups will require more green time than the other (i.e. it will have a higher flow ratio). This would be the critical lane group for that signal phase. Each signal phase will have a critical lane group that determines the green-time requirements for the phase. X_c is v/c for critical movements, assuming green time allocated proportionately to v/s values. (Source: Highway Capacity Manual 2000, chapter 16 - Signalized Intersections, Methodology)

Building the Transportation System

The Des Moines CTP has identified numerous capital improvements necessary over the next 20 years to meet the adopted LOS standards, and to provide a safe and efficient multi-modal transportation system.

The capital program needed to build the future transportation system cannot be accomplished through public finance alone. The City will need to secure private investment capital and pool regional resources for the transportation system. Details of planned capital improvements and finance plans can be found in the CTP.

Alternative transportation strategies requiring lower capital investment and maximizing the capacity of the existing system also need to become a viable component of the network. The Des Moines CTP identifies alternative modes (transit, bicycling, walking), demand management strategies, carpooling, changes in work schedules, and parking fees as important components that have historically have been underutilized.

GOALS

To ensure the Transportation Vision is achieved, the City has the following goals:

- Goal TR 1:** *Design and construct a transportation system to serve the land use pattern set forth by the Land Use Element of the Comprehensive Plan.*
- Goal TR 2:** *Provide a street network that serves the needs of Des Moines residents, businesses, emergency services, and visitors.*
- Goal TR 3:** *Require construction of transportation facilities needed to support new growth that achieves adopted level of service (LOS) standards on the City's transportation network.*

- Goal TR 4:** *Encourage the preservation and expansion of public transit services to provide necessary and affordable transportation alternatives for all residents and employees.*
- Goal TR 5:** *Provide a connected network of non-motorized transportation facilities to provide access to local and regional destinations and to support a healthy lifestyle.*
- Goal TR-6:** *Establish parking strategies to support economic activity, transportation, circulation, and existing and future land uses.*
- Goal TR 7:** *Pursue funding for transportation improvements from all potential sources.*
- Goal TR 8:** *Strive to minimize impact on the environment for all transportation projects, and consider context sensitive design strategies when appropriate.*
- Goal TR 9:** *Reduce congestion, air pollution and fuel consumption through Transportation Demand Management (TDM) and Commute Trip Reduction (CTR) programs.*

POLICIES AND IMPLEMENTATION STRATEGIES

Transportation and Land Use

- TR 1.1 Build a street network that connects to the regional transportation system and to the local street networks in adjacent communities.
- TR 1.1.1 Prepare and maintain a computerized model of the existing local, state, and regional network, existing traffic levels and levels of service on the network, and projected traffic growth.
 - TR 1.1.2 Coordinate with neighboring cities on local street network improvements that cross jurisdictional boundaries.
- TR 1.2 Ensure consistency between land use and the transportation plan so that transportation facilities are compatible with the type and intensity of land uses.
- TR 1.2.1 Maintain traffic forecasts for at least 10 years based on land use assumptions.
 - TR 1.2.2 Prepare and maintain a database of various traffic data including traffic volumes, truck traffic volumes, and turning movement counts.
 - TR 1.2.3 Prepare updates to the CTP approximately every five years to ensure that the most recent land use assumptions are reflected in the CTP.
- TR 1.3 Transportation system design shall be based on the most current City of Des Moines Transportation data and analysis as compiled in the CTP. Transportation assumptions in the CTP shall reflect the most recent land use assumptions and shall be updated approximately every ten years, with a “check up” every five years.
- TR 1.3.1 During CTP major or minor updates, collect current volumes and compare with traffic growth trends.

TR 1.4 Consider multi-modal transportation options by providing enhancements to the roadside (widened shoulders and sidewalk where feasible) with connections to civic facilities, recreation areas, education institutions, employment centers, and shopping.

TR 1.4.1 Include multi-modes in the design of transportation capital improvement projects.

TR 1.4.2 Ensure development required frontage improvements accommodate multi-modes.

Street System

TR 2.1 Establish a functional classification system for the street network, consisting of a hierarchy of street functions that generally describes their intended use.

TR 2.1.1 Design and build the street network according to their desired classification.

TR 2.1.2 To the extent possible, maintain the street network within their desired classifications.

TR 2.2 Provide convenient access to business districts and centers including management of traffic congestion.

TR 2.2.1 Consolidate access to properties along principal, minor, and collector arterials, where practical, to maximize the capacity of the street and reduce potential safety conflicts. *(CTP TR 2.13)*

TR 2.3 Provide a connected street network or grid pattern that distributes traffic over more streets providing people with more travel routes.

TR 2.3.1 Periodically monitor and evaluate traffic patterns to validate appropriate classifications within the street network.

TR 2.3.2 Plan a street network that provides convenient access within and between neighborhoods. *(CTP TR 2.10)*

TR 2.3.3 Require new development to build streets that connect with or will connect in the future with streets on adjacent developments providing access between neighborhoods. *(CTP TR 2.11)*

TR 2.4 Protect residential neighborhoods from overflow and cut through traffic through the City's Neighborhood Traffic Calming Program.

TR 2.4.1 Monitor traffic related concerns and implement strategies in the City's Neighborhood Traffic Calming Program where appropriate.

TR 2.4.2 Monitor and identify traffic safety concerns, and implement potential corrective measures as necessary. *(CTP TR 2.6)*

TR 2.5 Provide opportunities for residents and business owners to give comments on Des Moines' transportation system.

TR 2.5.1 Establish and regularly update street design and construction standards. *(CTP TR 2.7)*

- TR 2.6 Preserve and maintain the existing streets and other transportation infrastructure. *(CTP TR 2.15)*
- TR 2.6.1 Monitor and identify traffic safety concerns, and implement potential corrective measures as necessary. *(CTP TR 2.6)*
- TR 2.6.2 Require new development to dedicate and improve abutting right-of-way as necessary to meet street design and construction standards. *(CTP TR 2.12)*
- TR 2.7 The planned extension of State Route 509 to Interstate 5 is a key transportation facility for the City of Des Moines and its construction should be completed as soon as possible.
- TR 2.7.1 Continue advocating through Council Resolutions and steering committee representation at local and regional levels for the funding and completion of the SR-509 Project.

Concurrency

- TR 3.1 Maintain LOS standards that provide for growth and maintain mobility on the existing transportation system.
- TR 3.1.1 Develop and adopt concurrency ordinances in support of the GMA.
- TR 3.1.2 Periodically monitor intersection LOS to verify assumptions within the CTP.
- TR 3.1.3 Using the transportation model and the CTP, identify and prioritize improvements to the street network so that the adopted LOS standard is met.
- TR 3.2 Condition approval of proposed development to ensure the LOS does not fall below the City's adopted LOS standards, by requiring the developer makes improvements to mitigate the impacts, concurrent with the development.
- TR 3.2.1 Require developers to analyze traffic impacts associated with development proposals, and require improvements as necessary to mitigate impacts, concurrent with the development.
- TR 3.2.2 Establish procedures and standards for Traffic Impact Studies.

Public Transit

- TR 4.1 Promote transit use and support programs that improve transit coverage and service within Des Moines.
- TR 4.1.1 Encourage King County Metro and Sound Transit to expand the number of transit routes serving Des Moines and to increase the frequency and span of service on existing routes. *(CTP TR 4.2)*
- TR 4.1.2 Encourage developments to provide convenient pedestrian access to transit stops from new commercial, multifamily, and single family subdivisions. Developments should incorporate facilities, such as transit shelters, bus pullouts, internal circulation paths and landing areas that foster transit ridership. *(CTP TR 4.3)*

- TR 4.1.3 Support plans by other agencies to construct park-and-ride lots that are convenient for Des Moines' residents. *(CTP TR 4.4)*
- TR 4.1.4 Support increased transit service to park-and-ride lots and major transfer points. *(CTP TR 4.5)*
- TR 4.1.5 Support regional plans for high capacity transit (HCT) and opportunities that extend the regional transit system (including RapidRide and light rail) to provide convenient connections to Des Moines. *(CTP TR 4.6)*
- TR 4.1.6 Support frequent local service linking Downtown, Des Moines businesses and Highline College with HCT on Pacific Highway South. *(CTP TR 4.9)*
- TR 4.1.7 Support a light rail alignment on the west margin of the proposed State Route 509 and Interstate 5.
- TR 4.1.8 Support a light rail station east of Pacific Highway S (SR 99) in the vicinity of Highline College.
- TR 4.1.9 Consider a light rail station in the vicinity of S. 216th Street along the SR 509/I-5 alignment only.
- TR 4.1.10 Work with Sound Transit on station area planning for Midway and South 272nd Street stations. *(CTP TR 4.11)*
- TR 4.1.11 Coordinate with the City of Kent and Highline College for the Midway subarea. *(CTP TR 4.12)*
- TR 4.1.12 Investigate the passenger-only ferry demonstration project and require connecting shuttles to area park-and-ride lots and the Marina District. *(CTP TR 4.7)*

Pedestrian and Bicycle Facilities

- TR 5.1 Build a non-motorized transportation network to provide safe pedestrian and bicycle movement.
 - TR 5.1.1 Promote multi-modal facilities and services within walking/bicycling distances of residential and commercial developments. Constructing sidewalks and walkways within pedestrian corridors that link neighborhoods to schools, parks, transit routes, and businesses is a high priority. Provide bicycle parking at key transit hubs and activity centers in Des Moines. *(CTP TR 5.2)*
- TR 5.2 Prioritize pedestrian and bicycle improvements that provide access to schools, parks and other public buildings. Provide bicycle amenities at schools, parks, and other public buildings. *(CTP TR 5.10)*
 - TR 5.2.1 Require all new roadway construction, reconstruction, or widening projects to include sidewalks. Street maintenance activities, including pavement overlays should provide upgrades for curb ramps when necessary. *(CTP TR 5.3)*

- TR 5.2.2 Enhance the attractiveness of the Marina District as a pedestrian environment using features such as benches, landscaping, lighting, drinking fountains, bicycle racks, and public art. *(CTP TR 5.4)*
- TR 5.2.3 Require new or redeveloping properties to design and build sidewalks along property frontage. *(CTP TR 5.9)*
- TR 5.3 Support “Safe Routes to School” programs and education campaigns on traffic, bicycle and pedestrian safety in consultation with school districts.
 - TR 5.3.1 Work with the Kent, Federal Way and Highline School Districts as well as neighborhood associations to support programs that encourage walking and bicycling to local schools. *(CTP TR 5.5)*
 - TR 5.3.2 Design pedestrian crossings consistent with standards in regard to crosswalks, lighting, median refuges, corner sidewalk widening, ramps, signs, signals and landscaping. *(CTP TR 5.6)*
 - TR 5.3.3 Provide a bicycle network that supports the use of bicycles as a means of general transportation as well as recreational activity. Construct new streets with sufficient width to allow for bicycling on identified bicycle corridors. *(CTP TR 5.7)*
 - TR 5.3.4 Encourage new and existing schools, multi-family and commercial developments to provide bicycle racks and other amenities to support bicycling. *(CTP TR 5.8)*

Parking

- TR 6.1 Require new development in the Marina District to provide a sufficient number of parking spaces either on-site or in a shared parking structure.
 - TR 6.1.1 Develop a detailed parking plan.
- TR 6.2 Restrict or limit parking on principle arterials with the exception of Marine View Drive in the Marina District.
 - TR 6.2.1 Provide short term on-street parking unless prevented by right-of-way limitations or unique neighborhood characteristics. *(CTP TR 6.3)*
 - TR 6.2.2 Establish street design and construction standards to accommodate on-street parking where feasible.
 - TR 6.2.3 Set and enforce parking limits to address parking concerns in neighborhoods. *(CTP TR 6.4)*
 - TR 6.2.4 Consider flexible and innovative parking solutions and strategies.
 - TR 6.2.5 Consider off-street parking requirement modifications when supported by parking demand data.

Funding

- TR 7.1 Seek funding for projects in the Transportation Improvement Program (TIP).

- TR 7.1.1 Coordinate with other jurisdictions to fund transportation improvements and participate in joint efforts that improve inter-jurisdictional facilities and achieve economies of scale on similar projects. *(CTP TR 7.3)*
- TR 7.1.2 Partner with neighboring cities or regional transit agencies/providers in order to improve state and federal funding opportunities. *(CTP TR 7.4)*
- TR 7.2 Allocate resources to the Transportation CIP and TIP in the following ranked priority: 1) safety enhancements; 2) preservation, maintenance and operation of existing facilities; 3) capacity improvements; 4) projects that improve multiple modes while taking full advantage of funding opportunities as they arise.
 - TR 7.2.1 Prepare a multi-year financing plan for right-of-way acquisition and transportation improvements. *(CTP TR 7.5)*
 - TR 7.2.2 Prepare estimates of the cost to acquire needed right-of-way and to construct needed transportation improvements.
 - TR 7.2.3 Maintain a transportation impact fee system that equitably and proportionately charges new development for identified growth related improvements to the transportation system. *(CTP TR 7.7)*
- TR 7.3 Evaluate traffic generated by new development and require off-site improvements to the transportation system that are needed to maintain adopted LOS standards.
 - TR 7.3.1 Require and review project specific Traffic Impact Analysis studies for new development to ensure compliance with adopted LOS standards.
 - TR 7.3.2 Pursuant to RCW 36.70A(6)(b), establish concurrency requirements in the DMMC that reinforce the process of reviewing the traffic impacts of new development.
- TR 7.4 Emphasize investments for the preservation and maintenance of the City's existing transportation facilities. Seek funding from a variety of sources and consider pursuing new opportunities for street maintenance revenue. *(CTP TR 7.8)*
 - TR 7.4.1 Prioritize pavement management as a top priority in the Transportation Improvement Plan.
 - TR 7.4.2. To the extent permitted by state law, use Transportation Benefit District authority to allocate additional funds to pavement preservation.
- TR 7.5 Seek funding to correct locations with identified traffic safety concerns. *(CTP TR 7.9)*
 - TR 7.5.1 Apply for Highway Safety grants at locations that experience high accident rates and have correctable countermeasures.
 - TR 7.5.2 Use Automated Traffic Safety revenue to make pedestrian safety improvements Citywide with an emphasis on improvements near school zones.

Environmental

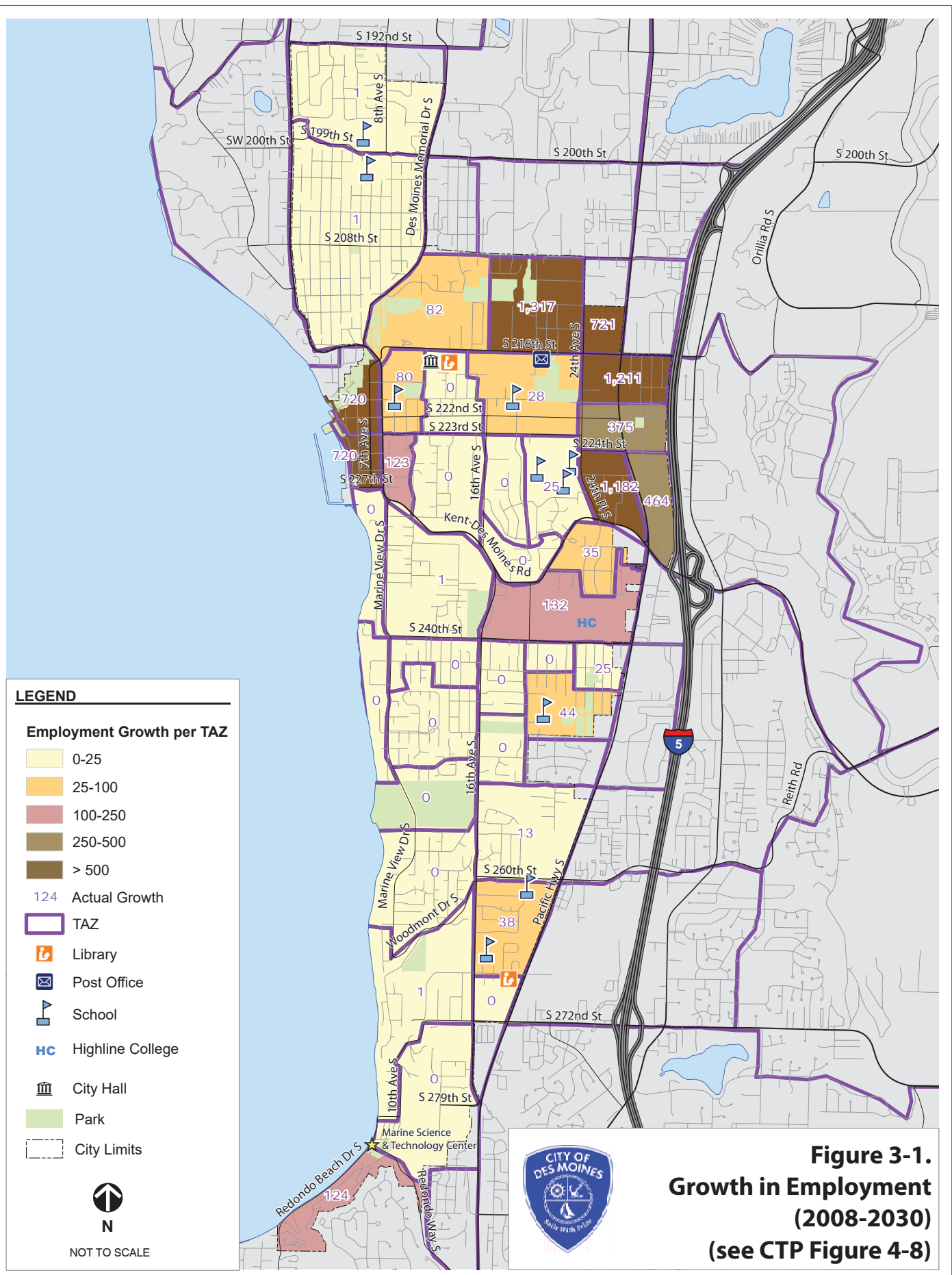
- TR 8.1 Balance transportation services with the need to protect the environment.

- TR 8.1.1 Incorporate appropriate landscaping in the design of transportation facilities. *(CTP TR 8.2)*
- TR 8.1.2 Provide transportation facilities that fit the character of the neighborhoods through which they pass. *(CTP TR 8.3)*
- TR 8.1.3 Where determined necessary, incorporate sound absorption devices, landscaping, earthen berms and other natural or artificial features that help mitigate adverse noise, light and glare impacts generated by surface transportation facilities. *(CTP TR 8.5)*
- TR 8.1.4 Operate the traffic system to minimize congestion and air quality impacts. *(CTP TR 8.6)*
- TR 8.1.5 Phase construction of roadway and other transportation facilities to minimize inconvenience to and negative impact upon adjacent property owners.
- TR 8.2 Construct streets and other transportation facilities using construction methods that minimize adverse environmental impacts and impacts to environmentally sensitive areas.
 - TR 8.2.1 Construct roads and other transportation facilities to minimize adverse impacts upon surface water runoff, drainage patterns, and environmentally critical areas.

Transportation Strategies for Sustainability

- TR 9.1 Use transportation demand management (TDM) strategies to reduce single-occupant vehicle travel and encourage alternative modes of travel. These strategies include parking management, individualized marketing, ridesharing and support of non-motorized travel. *(CTP TR 9.1)*
 - TR 9.1.1 Work with employers to provide commute trip reduction (CTR) measures in the work place that promote alternatives to driving alone. Encourage businesses to minimize peak hour commuting through the use of strategies such as flextime and telecommuting. *(CTP TR 9.2)*
 - TR 9.1.2 Encourage new commercial development to implement measures that promote greater use of transit, carpools, van pools, and bicycles, and increase opportunities for physical activity. *(CTP TR 9.3)*
 - TR 9.1.3 Encourage employers in commercial zones to sponsor, co-sponsor or provide shuttles to enhance connectivity with Sound Transit Link Light Rail stations at S. 200th Street and in the vicinity of Highline College, with BRT facilities on Pacific Highway S., as well as provide routes that would circulate through Des Moines to bring people to and from the Marina District.
 - TR 9.1.4 Coordinate and optimize traffic signal systems to minimize delay and congestion, and maximize the use of existing transportation system capacity.

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LEGEND

Household Growth per TAZ

- 0-50
- 50-250
- 250-500
- 500-1,000
- > 1,000

124 Actual Growth

TAZ

Library

Post Office

School

HC Highline College

City Hall

Park

City Limits

N

NOT TO SCALE

