

A Summary of Guidelines for Coordinated Urban Design, Transportation and Land Use Planning, With an Emphasis on Encouraging Alternatives to Driving Alone

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**A SUMMARY OF GUIDELINES FOR
COORDINATED URBAN DESIGN,
TRANSPORTATION AND LAND USE PLANNING,
WITH AN EMPHASIS ON ENCOURAGING
ALTERNATIVES TO DRIVING ALONE**

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INTRODUCTION

That relationships exist among transportation, land use, and urban design has long been recognized by developers, urban and transportation planners, public officials, and the public itself. Only recently, however, has the rising importance of growth management and environmental planning forced the integration of land use, urban design, and transportation interests in actual urban development policies. The popularity of impact fees and concurrency management are just two examples of the current concerns regarding the relationship of these urban system elements.

This report summarizes urban development guidelines that various jurisdictions, professional consultants, and experts have prepared to address the interactive relationship among transportation planning, land use planning, and urban design. The following guidelines have been compiled from the literature surveyed in this project (see references). The aim of these guidelines is to aid in the design of cities and transportation systems that will reduce the necessity of driving alone. For an introduction to the relationships among transportation, land use, and urban design, the reader is referred to "Land Use-Transportation Linkage" (Kestle, Rutherford, and Ishimaru, 1992).

Research for this report included the following steps: (1) the identification of literature sources that provide guidelines related to land use, urban design, and transportation, (2) a compilation of all guidelines provided, which addresses specifically one or several relationships among land use, urban design, and transportation, (3) a classification of the guidelines under broad categories, and (4) the consolidation of guidelines of similar nature in each category. The broad categories into which the guidelines were divided were, therefore, derived directly from what was found in this research's literature review.

These categories include "Location of Land Uses," "Site Planning and Design Standards," "Transit Station Design," "Parking Design and Management," "Site Planning

and Design of Park-and-Ride Facilities," "Bicycle and Pedestrian Planning," "Standards and Procedures for Development Review," and "Implementation Mechanisms."

There are several differences in the amount and level of detail found in the guidelines' different categories. The category "Location of Land Uses" is particularly general, and this indicates a need for future research and policy in this area. "Site Planning and Design Standards" is another category that will require future development. On the other hand, "Bicycle and Pedestrian Planning" offers a number of detailed guidelines that would benefit from further organization into clear subcategories, such as path design, safety considerations, connection with public transit, and connection with automobile systems. The source of each guideline is provided in this report. As noted by the multiple sources quoted in most of the guidelines, the authors found considerable duplication in several literature sources. This overlap indicates a certain level of consensus among writers in the field.

This report only enumerates previously stated guidelines. Examples of applications of each of the guidelines can be found; however, the extent to which they have been applied varies from place to place, and city to city. For instance, the cities of Boulder, Colorado, and Davis, California have extensive pedestrian and bicycle systems. Downtown Portland, Oregon has effective parking management policies. An exposition of exactly where and when these guidelines have been applied is beyond the scope of this report, but this, along with an assessment of the impacts that the guidelines have had on development patterns and transportation behavior, could be the subject of future research.

LOCATION OF LAND USES

These guidelines address the categories of consideration in land use issues to support alternatives to driving alone.

- Require that residential developments and employment and activity centers be developed at densities and in areas that can be served by public transportation. (SNO-TRAN, p. 3-3/4-3) (CUTS, p. 42) (Metro, p.29/33) (Cervero, p. 122) (Walton, p. 2-5) (CUTS, p.40) (Rutherford and Frank, p. 162) (FDOT, p. 17)
- Encourage transportation-sensitive land use policy through the designation of transit corridor districts. (CUTS, p. 24/35)
- Increase employment and residential densities along bus routes and at bus stops. (SNO-TRAN, p. 5-4) (Cervero, p. 122)
- Locate development within existing urban or suburban activity centers. (Walton, p.2-5) (SNO-TRAN, p. 3-2) (Metro, p. 29/33) (Cervero, p. 122)
- Allow convenience stores, services such as daycare, and pharmacies at park-and-ride lots and within residential areas; and allow compatible uses such as restaurants, banks, daycare service, and convenience stores in employment centers. (SNO-TRAN, p. 5-3) (Cervero, p. 124). (SNO-TRAN, p. 5-3) (Cervero, p. 123)
- Encourage in-fill development on bypassed vacant parcels in developed areas adjacent to bus routes and stops. (SNO-TRAN, p. 5-3)
- Locate transit transfer facilities at activity centers. (Rabinowitz and Beimborn, p. TC-9) (Walton, p. 2-5) (Rutherford and Frank, p. 162) (Metro, p. 29)
- For express bus routes, park-and-ride facilities should be located close to major arterials or freeways to promote greater efficiency and travel speed. (Rabinowitz and Beimborn, p. PR-8) (Rutherford and Frank, p. 23)

SITE PLANNING AND DESIGN STANDARDS

A transit agency or municipal government can encourage transit use by adopting specific site design standards or guidelines. Transit use must be accounted for early in the site design process.

- Design sites with direct and safe pedestrian connections to transit stations and adjacent land uses. (Walton, p. 2-5) (SNO-TRAN, p. 3-4) (Metro, p. 29) (Brittle, p. 53)
- Increase residential density in order to increase public transportation ridership potential. (SNO-TRAN, p. 3-5)
- Plan activity centers with a mixture of employment, mid- to high-density housing, and shopping, entertainment, government, cultural, recreational, and educational facilities. (SNO-TRAN, p. 3-2/4-3/5-2) (Walton, p. 2-5) (Rutherford and Frank, p. 163) (Metro, p. 29) (CUTS, p. 66) (SCPD, p. 39)
- Cluster major developments in existing commercial and residential areas and at employment centers. (SNO-TRAN, p. 5-6) (Cervero, p. 123)
- Reduce setbacks for retail, employment, and multi-family land uses on streets with bus facilities to encourage transit use. (SNO-TRAN, p. 5-6)
- Require street level pedestrian uses in buildings in commercial, office, or mixed-use areas with bus routes and nearby bus facilities to stimulate activity and interest. (SNO-TRAN, p. 5-4) (PPS, p. 35-40)
- Place parking behind or to the sides of buildings on transit routes, and orient front building entrances toward the street. (PPS, p. 35-40) (SNO-TRAN, p. 5-6)
- Provide covered walkways between buildings and bus stops, and provide bus stops with shelters. (deChiara and Koppelman '87, p. 253)
- In areas where growth is expected but bus service is not yet available, bus/HOV serviceable site plans should be required so that the use of bus and HOV is practical when it becomes available. (FDOT, p. 80)
- Locate bus stops as close to streets as possible to minimize on-site travel and conflicts between pedestrians, bicycles and automobiles. (Walton, p. 4-49) (Metro, p. 35)

TRANSIT STATION DESIGN

The following are general design guidelines for the construction of activity centers (CBD or other) or neighborhood rail stations, transit malls, bus shelters, and transfer stations. These design guidelines relate details of service design, transit stop features, safety, security, and maintenance.

- Local stations should enhance the local community by providing appropriate plazas and outdoor areas, landscaping, and community information that is compatible with their residential context. (Rabinowitz and Beimborn, p. C-12/C-20/C-26/N-11/N-20/L-12/TM-15/TM- 28/TC-10) (PLP, p. 62)
- Circulation and orientation of pedestrians within the local stop station environment (to and from vehicles and related services) should be facilitated. (Rabinowitz and Beimborn, p. L-16)
- The transportation center should be an attractive and comfortable environment providing both shopping and waiting areas that incorporate a high degree of passenger safety. (Rabinowitz and Beimborn, p. L-15/L-17/C-28/C-30/TC-23/TM-26/TM-31/N-19) (CUTS, p. 93-94) (Brambilla and Longo, p. 23/27)
- Design for handicapped access should not merely adhere to minimum standards but should strive for comfort and pleasure. (Rabinowitz and Beimborn, p. TM-20/N-16/TC-15) (CUTS, p. 94)
- Climatic factors (e.g., wind, sun, rain) must be considered as part of site design and transit station location. (Rabinowitz and Beimborn, p. C-13/TM-14/TM-29/L-9/N-13/TC-10) (Metro, p. 40) (Brambilla and Longo, p. 43)
- The facility should provide opportunities for retail activities at exterior entries to transit stations. (Rabinowitz and Beimborn, p. C-14) (Brambilla and Longo, p. 20)
- Downtown stations should have direct and safe connections to large building developments, such as high-density housing, hotels, office complexes, and shopping centers that provide services and amenities for the transit passenger. (Rabinowitz and Beimborn, p. C-16/C-25)
- To avoid vehicle conflicts and minimize travel time, distinct rights-of-way for rail/bus/auto should be separated where practical. (Rabinowitz and Beimborn, p. C-17/TM-17/TC-16)

- **Signing at transit sites should provide clear, easily understood information for all users about the routes and transfers available, the important stops along the route, and the transit system telephone information number. (Rabinowitz and Beimborn, p. C-19/C-27/N-17/N-24/N-30/TC-8/TC-16/TC-22/L-8/TM-19/TM-30) (Jacobs, p. 351)**
- **Space around the station should be allocated to providing connections with other modes of travel. (Rabinowitz and Beimborn, p. N-9/N-15)**
- **The facility should accommodate growth and change by providing generous space to accommodate future contingencies. (Rabinowitz and Beimborn, p. N-19/L-15/TM-23/TC-18/TC-21) (CUTS, p. 89)**
- **The facility should provide access for emergencies and for necessary deliveries. (Rabinowitz and Beimborn, p. TM-17)**
- **To reduce conflict and enhance operational efficiency, separate access points should be provided for each travel mode. (Walton, p. 4-49) (Metro, p. 44) (Walton, p. 4-49)**
- **Design transit facilities, such as bus stops or transfer centers, so they are conveniently integrated into buildings, residential developments, roads, and building entrances. (SNO-TRAN, p. 3-4)**

PARKING DESIGN AND MANAGEMENT

Parking management has been recognized as an essential element in modifying travel behavior. Parking management involves public sector strategies that affect pricing by instituting tax laws, and affect parking availability by instituting zoning codes and other regulations regarding the number of parking spaces, and the design and location of parking facilities.

- Develop a regional parking policy that complements the public transportation strategy, the street and highway system strategy, and the land use plan. The parking policy should be developed for off-street, on-street, private, and government-owned parking facilities. (FDOT, p. 93)
- Assure pedestrian friendly parking facilities by providing pedestrian links between parking facilities and office buildings, highways, transit facilities, and green space. (FDOT, p. 94)
- When vehicular, pedestrian, and bicycle accidents occur, some parking removal and street narrowing with landscaping may effectively improve safety. (FDOT, p. 95)
- New developments of rehabilitated parking facilities that contain a significant number of stalls (e.g. more than 40) should be required to designate a portion (e.g., 10 percent) of the stalls for incentive programs such as ridesharing, carpooling, and vanpooling. These designated spaces should be in prime locations. (FDOT, p. 94)
- The size of any single parking lot area should be limited to 2.5 acres made up of smaller (seven vehicles or less) shielded lots. This number can be exceeded if the parking area is divided by a street or building and if 7 percent or less of the area is used for parking. (FDOT, p. 98)
- Create minimum and maximum parking requirements for certain land uses such as offices, employment and industrial centers, and for the total number of parking spaces available for on-street and off-street use. (SNO-TRAN, p. 5-7) (Metro, p. 62) (Brittle, p. 51) (Metro, p. 62/69)
- Require transportation demand management programs to provide alternatives to single-occupancy vehicle travel, and reduce parking requirements to support TDM programs. (SNO-TRAN, p. 5-7)

- **Require preferential parking for carpools and vanpools adjacent to major building entrances at employment sites, major event sites, and retail facilities. (SNO-TRAN, p. 5-7) (Rohe, p. 53) (Metro, p. 58)**
- **Parking requirements in transit corridor districts should reflect the availability of transit services. Reduce parking requirements for land uses near public transportation facilities. (SNO-TRAN, p. 5-8) (Metro, p. 29) (CUTS, p. 30)**
- **Prohibit peak-hour parking and curbside deliveries on major bus routes. (Brittle, p. 57)**
- **Establish a residential parking permit program for neighborhoods close to transit facilities. (Brittle, p. 53) (Metro, p. 58)**
- **Allow commercial businesses to trade SOV parking spaces for conveniently located bicycle storage spaces. (FDOT, p. 88)**
- **Establish flexible parking requirements allowing businesses that are able to ensure a reasonable chance of success for traffic mitigation to reduce the number of parking spaces they provide. (Brittle, p. 47-48) (Metro, p. 63)**
- **Establish pricing scales that penalize long-term parking. (Brittle, p. 52) (Metro, p. 68)**
- **Enact increases in price of parking in given target areas (through rate increase or taxes). (Metro, p. 69)**

SITE PLANNING AND DESIGN OF PARK-AND-RIDE FACILITIES

- The park-and-ride facility should be clearly marked, and adequate signing should be placed on all adjacent streets and highways to direct persons arriving by auto. (Rabinowitz and Beimborn, p. PR-8) (Rutherford and Frank, p. 23)
- Locate park-and-ride facilities in places that will maximize their potential for joint development. (Rabinowitz and Beimborn, p. PR-6) (Brittle, p. 53) (Rutherford and Frank, p. 23)
- Locate park-and-ride facilities where ridership potential and access to the site is excellent. (Rabinowitz and Beimborn, p. PR-10) (Rutherford and Frank, p. 37) (PLP, p. 93)
- Auto access points should minimize conflicts between park-and-ride generated traffic and through traffic. (Rabinowitz and Beimborn, p. PR-11) (Rutherford and Frank, p. 110-111)
- Provide safe, auto-free pedestrian circulation paths. (Rabinowitz and Beimborn, p. PR-15) (Rutherford and Frank, p. 37)
- Site design should respond to the climate and weather patterns in the region. (Rabinowitz and Beimborn, p. PR-16) (Rutherford and Frank, p. 23/110-111)
- The design of handicapped access should be considered early in the design process. (Rabinowitz and Beimborn, p. PR-17) (Rutherford and Frank, p. 95/110) (deChiara and Koppelman '87, p. 277)
- An attractive pedestrian shopping/waiting environment should be provided in the park-and-ride facility. (Rabinowitz and Beimborn, p. PR-21) (Rutherford and Frank, p. 23)
- The park-and-ride station environment should be free of criminal activity and should reduce passengers' anxieties about such activity. (Rabinowitz and Beimborn, p. PR-27) (Rutherford and Frank, p. 97/106)
- Facilities should provide an attractive, visible, high-quality environment that meets modern standards of comfort and safety. (Mather, p. 7) (Rutherford and Frank, p. 105)

- **Facilities should be recognizable as elements of a park-and-ride network, provide an extensive display of transit system information, and be identified for ease of location. (Mather, p. 7) (Rabinowitz and Beimborn, p. PR-9) (Rutherford and Frank, p. 109)**
- **Facilities should be designed to encourage commuter bus access by foot, bicycle, auto drop-off, and other shared-ride methods. (Mather, p. 7) (Metro, p. 71)**

BICYCLE AND PEDESTRIAN PLANNING

Pedestrian planning has occurred primarily in dense urban areas. Traffic congestion in suburban areas have provided an impetus for reconsidering the provision of pedestrian facilities. Lobbies for bicycle transportation have been strong for a number of years. Lobbyists are increasingly receiving attention as transportation planning seeks to reduce dependence on single-occupancy vehicles.

The following guidelines provide specific details for pedestrian and bicycle pathways.

- Plan and construct a system of bicycle paths and pedestrian walkways connecting residential, employment, shopping, recreational facilities, and public transit within a city. (Brittle, p. 63) (CUTS, p. 83) (SCPD, p. 259) (deChiara and Koppelman '87, p. 274) (deChiara and Koppelman '82, p. 309) (SNO-TRAN, p. 4-3)
- Pedestrian and bicycle paths should be safe, convenient, attractive and comfortable environments. (Brambilla and Longo, p. 23/27) (PPS, p. 35-40) (Cervero, p. 125) (CUTS, p. 83) (Metro, p. 40)
- Promote bicycle access through high-quality pathways and secure storage systems. (CUTS, p. 87) (Brittle, p. 64) (Lowe, p. 6) (SCPD, p. 154) (deChiara and Koppelman '87, p. 273) (deChiara and Koppelman '82, p. 309/ 313)
- Integrate feeder bus, auto access points, and pedestrian systems at regular intervals. (CUTS, p. 88)
- Plans should contain a mix of separate paths, streets marked with bicycle lanes, bicycle-only streets, and streets where traffic volumes and other conditions are compatible with increased bicycle use in mixed traffic. (Brittle, p. 63) (SBMPO, p. 1) (deChiara and Koppelman '87, p. 271) (Brambilla and Longo, p. 17) (deChiara and Koppelman '82, p. 309)
- Avoid constructing one-way roadway systems and free flow junctions that increase the capacity of a road system but direct the cyclist on unnecessary detours and into dangerous maneuvers. (Hudson, p. 1) (deChiara and Koppelman '82, p. 312) (PPS, p. 10)
- Provide continuous walkways with adequate lighting in major developments. (Brittle, p. 64) (Metro, p. 40)

- Use trees and landscaping between streets and sidewalks as a traffic calming technique. (Untermann, 1984)
- Provide islands in the centers of major arterials. (Brittle, p. 64) (Brambilla and Longo, p. 94)
- Provide street light systems where "walk" lights are automatically actuated and provide enough time to traverse the street. (Brittle, p. 64) (Brambilla and Longo, p. 54)
- Stimulate pedestrian access by providing landscaped walkways and arcades between major buildings within a development, adjacent developments or buildings, and major buildings and streets with public transportation facilities. (SNO-TRAN, p. 5-5) (Brittle, p. 64) (PPS, p. 7/33)
- At least 12 feet of open space must be provided for emergency vehicles and police surveillance vehicles along the entire length of the pedestrian street, not including existing sidewalks. (Brambilla and Longo, p. 61)
- Provide sidewalks along streets with bus stops and streets leading to bus stops, and safe crosswalks at or near bus stops, using all-weather material. (SNO-TRAN, p. 5-5) (PPS, p. 8) (Brambilla and Longo, p. 47)
- Eliminate barriers that discourage pedestrian access such as walls and beams, large landscaped areas or parking lots between major building entrances and bus stops, walking distances of 750-1,000 feet, and unsafe conditions. (SNO-TRAN, p. 5-5)
- Provide wheelchair ramps and other facilities that conform to barrier-free design standards. (SNO-TRAN, p. 5-6)
- Provide a strong recreational appeal to bicycle and pedestrian paths by allocating spaces and facilities that respond to the needs of its users. (Brambilla and Longo, p. 48) (PPS, p. 35-40)
- Improve the visual environment around bicycle and pedestrian pathways by restoring existing buildings, repaving the street floor to unify the entire space, planting trees and flowers, and promoting wall paintings and informational graphics. (Brambilla and Longo, p. 48)
- Provide places for seating and resting along pedestrian and bicycle pathways. (Brambilla and Longo, p. 48) (PPS, p. 35-40)
- Provide lighting to improve pedestrian safety and security. (SNO-TRAN, p. 5-6) (deChiara and Koppelman '87, p. 253)

- Provide pedestrians and bicyclists with a system of facilities, incentives, and services that fully support home-to-work, home-to-school, and utility trip making, especially in neighborhoods and employment districts. Neighborhoods and streetscapes should be safe, appealing, pleasant, and interesting for foot-speed travel. Such a system includes sidewalks, crossings of no longer than 38 feet between medians or raised islands, recall buttons where pedestrians would naturally like to cross, sufficient signal crossing times and frequency, fully illuminated intersection crossings, and speeds restricted to 25 mph in neighborhoods and 30 mph in commercial areas. (FDOT, p. 85)
- A route is "bicycle friendly" when it has a reasonably direct and continuous roadway design, and operations and maintenance include many of the following: 14-in. wide curb lanes, paved shoulders, bicycle lanes and bike paths, bicycle sensitive traffic signal loop detectors, uniform and trouble free pavement surfaces, and vehicle speeds restricted to below 35 mph. (FDOT, p. 85) (CBTD, p. 24)
- "Pedestrian friendly" streets should be a part of the normal, interconnected street pattern and include on-street parking, few (and narrow) driveways across sidewalks, compressed parking, uses oriented to the street, direct connection between the street and building entries, pedestrian goods and services nearby, grid rather than collector road patterns, interconnected streets, mixed land uses, and no superblocks. (CBTD, p. 24) (Cervero, p. 125)
- Provide enclosed bicycle parking, a shower, lockers, and changing room for walkers and bicyclists at any employment center with 100 or more employees and at all new, redeveloped, or expanded businesses or office complexes. Any employment center with 10 to 99 employees should also provide, or arrange with neighboring businesses to provide these services. (FDOT, p. 89) (Note: The cities of Seattle and Bremerton require bicycle parking facilities at all new development sites.)
- Use neo-traditional and other innovative neighborhood and urban design strategies, where streets are narrower than those presently developed to slow traffic. Such streets also provide for pedestrian and bicycle movement. Also, street cross sections are designed to facilitate pedestrian traffic and provide shorter turn radii for vehicles. (FDOT, p. 29) (CBTD, p. 19-20)
- All roadways designated as bicycle routes in local comprehensive plans within urban and rural areas should be designed, constructed and maintained with consideration to their usage by bicycles. Most roadways will be Class IV bicycle facilities (roadways with no bicycle designation), with bicycles using the roadway like other vehicles. (WSDOT, p. 17)
- Designate an interconnected system of Class II bikeways (a portion of the highway designated by signs and/or pavement markings for preferential bicycle use) on the urban and connecting rural roadway systems as primary bicycling facilities for transportation purposes. This Class II bikeway system should connect major activity centers and provide for continuous travel throughout urban

areas and adjacent rural areas, including linkages with other modes such as transit, ferries, and intercity travel facilities. (WSDOT, p. 18)

- **Class I bikeways (separated paths) are appropriate for transportation purposes for system connection or safety reasons. Examples of where separated paths are appropriate are:**
 - along or through a limited access corridor.
 - bypassing high traffic or other special conditions where the roadway cannot accommodate bicycles. (WSDOT, p. 18)

- **Other transportation modes, such as transit systems and ferries, should design, construct and maintain their facilities with consideration to bicycle use through:**
 - provision of secure bicycle parking at park and ride lots, stations and terminals.
 - accommodation of bicycles on bus routes where designated as part of bicycle route system.
 - designing future vessels and vehicles to safely accommodate bicycles. (WSDOT, p. 18)

- **Local comprehensive plans should include plans for the bicycle system. The regional transportation planning process should coordinate bicycle facility planning across jurisdictional boundaries. (WSDOT, p.18)**

- **Encourage bicycling as an alternative to single-occupancy automobile travel by promoting employer provision of bicycle facilities at employment sites. (WSDOT, p. 18)**

- **Designate touring highway routes that connect with urban bicycle systems. Target bicycle facility improvements on these routes. (WSDOT, p.18)**

STANDARDS AND PROCEDURES FOR DEVELOPMENT REVIEW

These guidelines recommend transit agency involvement in the review of development proposals and project designs.

- Establish threshold requirements for the application of transit-compatible standards to redevelopment, to major changes to existing land uses and buildings, and for transit-oriented mitigation as part of the environmental impact assessment process. (SNO-TRAN, p. 5A-8/5-2).
- Provide for transit-sensitive review of site plans and development proposals, and include the transit operator in the review of commercial, residential, industrial, and office applications. (CUTS, p. 26) (SNO-TRAN, p. 5-2)
- Provide a transit requirement checklist for potential developers. (CUTS, p. 28)

IMPLEMENTATION MECHANISMS

These are some of the financial or regulatory tools that can be used to integrate land use, urban design, and transportation objectives.

Negotiated Transportation Agreements	Developers provide transportation improvements in conjunction with new development. (Walton, p. 5-1)
Cost Sharing Arrangements	Construction and modernization of transit facilities are cooperatively financed by developers and local transit authorities. (Walton, p. 5-3)
Special Benefit Assessments	Property owners pay local transit authorities for service by transit providers. (Walton, p. 5-3)
Mitigation Payments	Project developers are required to pay the costs of transit improvements needed to mitigate the impact of individual developments. (Walton, p. 5-3) (Metro, p. 92)
Lease or Sale of Development Rights	Transit authorities lease or sell development rights to air space above or below property owned by the transit authority. (Walton, p. 5-3)
Bonus or Incentive Zoning	Zoning requirements are relaxed for developments that provide transit amenities. (Walton, p. 5-4) (Rutherford and Frank, p. 164) (SNO-TRAN, p. 5-12) (Metro, p. 63/93) (CBTD, p. 14) (Metro, p. 63/93)
Conditional Development Approval	Plan approvals, master plan approvals, special use permits, and conditional use permits are used to secure developer involvement in transit provision. (Walton, p. 5-5) (SNO-TRAN, p. 5-13)
Contractual Agreements	A contract between developers and the transit authority or local government specifies the transit improvements to be provided at new developments. (Walton, p. 5-5)
Concurrency Management	Development is prohibited where it causes transit level of service standards to be exceeded. (Cechman, p. 5)
Planned Unit Development	Rather than approving a large development on a lot-by-lot basis, local government approves an entire project or large portions of a project at one time, in exchange for which the developer dedicates various transportation facilities such as bus turnouts, benches, shelters, landing pads, and similar items. (Metro, p. 93)

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