



**Regional
Transportation
Authority**

The six-county public
transportation system
serving northeastern Illinois

Access & Parking Strategies for Transit-Oriented Development



*Setting
Ideas
in Motion*

November 2011



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The Regional Transportation Authority (RTA)

is the oversight, funding, and regional planning agency for the transit Service Boards including Chicago Transit Authority (CTA) bus and rail, Metra commuter rail and Pace suburban bus and paratransit. The agency was created in 1974 upon the approval of a referendum by the residents of Cook, DuPage, Kane, Lake, McHenry and Will counties in northeastern Illinois. The RTA is a special purpose unit of local government and a municipal corporation of the State of Illinois. From the time of its creation, the RTA's mission has been to ensure financially sound, comprehensive and coordinated public transportation for northeastern Illinois. The CTA, Metra and Pace handle their respective transit operations and fare responsibilities. Each is led by a Board of Directors that determines levels of service, fares and operational policies. The RTA's oversight responsibility is guided by the RTA's Board of Directors, who approves an annual budget and two-year financial plan that sets a strategic plan to guide all the agencies in achieving their common mission of providing the best transit system possible for the region. The Board consists of 16 members and a chairman appointed from the six-county region. The RTA Board also is required annually to review and approve a five-year capital plan, which is a blueprint of the capital activities to be funded by the RTA and executed by the CTA, Metra and Pace. The RTA regional system is the third largest in the country measured by unlinked passenger trips with more than two million rides daily. The combined assets of the RTA system are valued at more than \$43 billion and include 5,640 buses and rail cars, plus 650 vanpool vehicles. The system covers 7,200 route miles and 381 rail stations in the six-county region that currently has a population of approximately eight million people.



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The RTA and Transit-Oriented Development (TOD)

Transit-Oriented Development (TOD) is defined by the Regional Transportation Authority (RTA) as moderate to high-density, mixed-use communities generally located within a half-mile radius (ten-minute walk) of a rail or bus station designed to maximize walkability and transit access. TOD varies at each individual station area based on location and market demand—whether the station area is primarily an employment center, residential center, mixed-use area or another special use. TOD provides residents, workers and other transit users with increased mobility options, a variety of retail and commercial outlets within a short distance of their homes or places of employment while the compact style of development preserves open space. The ability to walk to destinations and access transit is especially important for the mobility-limited, young people, the elderly, those who do not own cars and those who choose not to drive.

The RTA believes that supporting TOD will maximize the use of the existing transit system by improving access to transit and increasing the number of jobs and housing in the immediate station area, ultimately leading to increases in ridership. The RTA has supported TOD by investing over \$3 million of its own funds during the past 12 years to complete approximately 70 TOD plans through the Community Planning and Subregional Planning programs. Recently, the RTA has shifted its focus on implementing the plans completed through these programs. These efforts include a combination of technical assistance programs and educational materials on specific topics related to TOD. In 2008, the RTA established the Regional TOD Working Group which is comprised of representatives from public and not-for-profit regional land use and transportation

agencies and the RTA Service Boards (Metra, Pace, CTA). This group has been an invaluable resource to the RTA, providing insight and feedback on several RTA-led TOD initiatives. To help further guide the RTA's TOD planning and implementation efforts, the RTA Board adopted a TOD Policy in 2010: http://rtachicago.com/images/stories/Initiatives/landuse_tod/TOD%20Policy.pdf

About This Guide

Through the RTA's years of experience planning for and implementing TOD plans, the topic of parking and how to balance its dual role of providing access to a transit station as well as a larger TOD community, without having a negative impact on other land use development, has been challenging. Implementing a variety of multi-modal access improvements and parking strategies can influence community development and travel behavior. A lesser-known impact is that on the economics of private development; excess parking can drive up development costs lowering the return on investment for developers and ultimately impacting the affordability of housing and commercial space.

The guide is intended as a resource for municipal officials looking for innovative strategies to support multi-modal access to their transit station and TOD area. While providing parking options in these areas is important, this guide focuses first on assessing multi-modal access strategies as a whole and placing a priority on pedestrian, bicycle and transit access. Ideally, a mixture of these strategies should be applied to achieve an optimal balance of access modes and available parking. Each station and TOD area is unique and not all strategies will be applicable to all communities—select those that are most applicable to your community's needs.





Transit Station Access Hierarchy

The RTA recognizes a hierarchy for accommodating access to transit stations, focusing on providing priority access to modes that are low-cost, have the fewest negative impacts on the environment and surrounding neighborhood and support the tenets of transit-oriented development and sustainable communities. This hierarchy applies to both the trip to the station and the trip to the final destination from the station. At the top of the hierarchy is access for pedestrians and people with disabilities, followed by bicycle access, connecting transit service access, kiss and ride access and park and ride access. Accommodations for people with disabilities should be included for every mode of access, ultimately benefitting all users by following accessible, universal design standards.



Access Mode Descriptions



Pedestrians

Providing a safe, pleasant walking environment not only reduces parking demand at the transit station, but also benefits the surrounding community by providing access to local businesses, schools, parks and residences. Accommodations should include well lit and landscaped sidewalks, visible crosswalks and dedicated pedestrian paths through or alongside parking lots. Pedestrian activity to access both the station and neighborhood amenities is best encouraged by supporting transit-oriented development in the immediate station area. All other modes of access should be designed keeping in mind that all commuters are a pedestrian at some point in their trip.

Metra: Avg. 21%
CTA: Avg. 60%



Bicycles

Bicycling to the station is a low-cost, efficient and environmentally friendly mode of access to the station for those who are outside the typical half-mile walk zone as bicyclists are generally willing to bike up to four miles to access the station. The most important element of bicycle access that needs to be accommodated at the station is secure, sheltered and plentiful bicycle parking. Municipalities may also want to consider implementing bikesharing programs near the transit station, allowing users to rent a bike for a few hours or a full day as a means to access their final destination.

Metra: Avg. 1%
CTA: Avg. 0.5%



Transit

For riders arriving from outside of the half-mile walkshed or the 4-mile bikeshed, connecting bus routes or feeder service is a good alternative to driving. Transit connections are important for those who do not own or cannot drive a car and for the elderly and people with disabilities. A bus loading and unloading area should be provided near the main station with short, direct access to the platform. This area can either be on-street or integrated into the overall station design.

Metra: Avg. 5%
CTA: Avg. 28%



Kiss and Ride

Drop-off/pick-up areas (kiss and ride) access is a low-cost alternative to providing commuter parking, though not as efficient as providing transit connections. Accommodating a kiss and ride area provides access to riders from a wide catchment area but does not require the type of major capital investment that commuter parking does and has no operating costs to the transit agencies. Adequate space should be provided, so that cars waiting to pick up passengers do not disrupt travel flow on nearby streets or through commuter lots. Kiss and Ride areas can be shared with bus loading and unloading areas, with priority access given to the bus.

Metra: Avg. 14%
CTA: Avg. 4%



Park and Ride

While park and ride access is less efficient and more expensive to accommodate than other modes, it is an important transit access mode with 60% of Metra users and 6% of CTA users choosing to use park and ride facilities. Accommodating parking at stations can divert drivers from the region's congested roadway system and onto transit. Buses can also serve remote park and ride facilities, potentially reducing the need for commuter parking directly at a transit station. Park and ride facilities can be accommodated through on-street parking, surface lots or structured parking. Nearby roads can accommodate on-street parking near the station with minimal capital costs and little to no additional land consumption. Structured parking can free up land in the immediate station area for transit-oriented development; however, the high cost of structured parking can be a deterrent to building. In station areas where land is available and costs are low, surface lots may be the most economical option. In all facilities, priority areas should be reserved for handicap accessible spaces, car-sharing services (such as I-Go or Zipcar) and those participating in carpools or vanpools.

Metra: Avg. 60%
CTA: Avg. 6%



Strategies to Reduce and Accommodate Parking Demand

Strategies to Reduce Parking Demand

Support transit-oriented development: This is the ultimate strategy for reducing parking demand at and around a transit station. By supporting and facilitating compact, transit-supportive land uses and a walkable, pedestrian-friendly environment within a half-mile of the transit station, preferred access modes will be accommodated (walking, bicycling, transit). A



typical TOD will include a mix of uses, such as residential, commercial and office that serve as both generators for transit riders leaving the TOD and destinations for those arriving.

Provide pedestrian, bicycle and connecting transit access to transit facility: This strategy should be accommodated at every station, as appropriate. The more riders that can access the station by walking, biking or by connecting transit services results in fewer necessary park and ride spots and more available land for tax-generating development.



Set maximum parking requirements: TOD can result in reduced vehicle ownership and use and support a reduction in parking requirements for residential and commercial uses as well as at transit stations. This strategy sets maximum parking requirements, or an upper limit for parking spaces, for an individual development or an entire area, as opposed to setting parking minimums, which is widely applied in suburban settings. This strategy can result in a more appropriate amount of parking in

Parking Requirements & Standards

Minimum vs. Maximum Parking Requirements

Most municipalities regulate parking for private developments by establishing minimum off-street parking requirements for different types of development or uses in order to accommodate residents, businesses and their customers. While minimum parking standards can alleviate parking concerns in many municipalities, including spillover into residential areas, these regulations can also result in an over-supply of parking during non-peak times as these requirements are calculated based on peak demand. This over-supply of parking can encourage increased automobile use in TOD areas as well as occupy valuable land that could be developed into other uses. To avoid an over-supply of parking in their TOD area, many municipalities have established maximum parking requirements as opposed to minimum parking requirements. Maximum parking regulations take into account other modes of access, such as walking, biking and transit as well as land use density and mix and limit the number of parking spaces that need to be provided for a particular development.

Parking Standard Comparison (Typical vs. TOD Area)

The following table compares typical parking requirements with reduced requirements for TOD areas, with numbers for minimum and maximum requirements. Please note that these requirements vary by municipality and can be adjusted depending on the proposed development and location.

Land Use		Typical Neighborhood		TOD Area	
Type	Per	Min	Max	Min	Max
Residential	Dwelling	1	2.5	.5	1.5
Office, Professional	1000 sq.ft	4	5	2.25	3.33
Restaurant	1000 sq.ft	16	17	4	8
Retail	1000 sq.ft	3	5	2.5	4

Source: Metropolitan Transportation Commission, June 2007

a TOD, and is often a financial incentive to private developers, as providing parking can drive up the costs of development. Maximum parking requirements are most effective when used in conjunction with other strategies, such as transit-supportive development and providing pedestrian and bicycle facilities.



facilities within a TOD, variable pricing rates should be utilized to encourage long-term parkers to use remote or less-desirable parking at a lower cost and charge a higher cost for more convenient, centrally-located spaces for high-turnover parking.

Price parking appropriately: Pricing parking based on peak hours of use and high-demand locations, known as “variable pricing,” is a strategy that can be used to encourage the use of alternative modes of transportation and as a way to raise revenue to maintain the parking facility. Fees for commuter parking lots should be set low enough to encourage transit use but just high enough to provide revenue to operate and maintain the facility. Too high of a parking fee can discourage transit use. For other public parking

Unbundle parking for private development:

This strategy is most often applied to residential developments, where the price of parking is generally wrapped into the unit purchase price or rent. By unbundling the parking, buyers or renters can choose whether they need parking spaces and how many they need, and pay for them separately. This results in buyers or renters only paying for the parking they need. In TODs, this can reduce car ownership for residents, make the cost of housing more affordable, and avoid “overparking” the area, which frees up more land for other uses.

Provide commuter benefits: This strategy is most relevant to employment-rich TODs that attract workers from other areas. Commuter benefits may be provided in the form of financial incentives to encourage employees to use alternative modes of access. Parking cash-out offers cash to employees if they agree to give up their subsidized parking space. Employees can also be provided with a travel allowance, which can

Local Parking Case Study

*Mixed-Use, Shared-Use Parking Deck
Grove Avenue Parking Deck
City of Berwyn*

The City of Berwyn constructed a parking deck on Grove Avenue in their Depot District utilizing a combination of local and federal funds. The five-level parking deck opened in December of 2009 with 396 parking spaces total, of which 296 are reserved for Metra commuters at a rate of \$3/day. Non-commuters may park in these spaces, but must pay the commuter rate. The 100 spaces on the top floor serve retail customers, hospital visitors and employees and general parking use at \$.25/hour.



The structure also includes 15,000SF retail space which has yet to be occupied. This entire structure replaced 86 surface lot spaces.

Constructing and engineering was funded by a General Obligation bond, CMAQ funding, Metra contributions and an FTA grant. The parking deck sits within the Depot TIF District, and TIF funds pay the debt service on the General Obligation bond.

Seventy percent of revenues from the parking deck are used to pay for maintenance, while the remaining 30% helps pay down the debt service.

Local Parking Case Study

*Phased Deck
Metra Commuter Parking Deck
City of Geneva*

The City of Geneva opened a parking deck near their Metra Station in September 2007. Constructed with 362 spaces, the two-story deck was engineered to accept a third-story as funds became available and extra spaces are warranted. The deck was designed with stronger footings and columns able to handle the weight of the third deck. In anticipation of the installation of a third track that requires the removal of 100 parking spaces, the City and Metra secured funding from the State of Illinois for the installation of the third level of the deck. Building a parking deck that

allows for future expansion provides an option to make a smaller investment upfront that may result in monetary and land savings in the future.



be used to pay for a parking space, a transit pass, or to cover the costs of walking or biking to work. Transit benefit vouchers can encourage employees to take transit by providing a subsidized transit pass. This strategy is available in the Chicago region through the RTA's Transit Benefit Fare Program. Through this program, employers can provide employees with up to \$230 a month, \$2,760 a year, for transit or vanpool commuting expenses as tax-free benefits. For more information visit: www.lesstaxingcommute.com

Encourage carsharing: This strategy, which also includes carpooling or Pace vanpools, can reduce the amount of parking needed at a commuter station as well as provide an option to reach a final destination if it is not within the immediate TOD area. Commuter spaces can be dedicated for



carsharing services (provided locally through I-GO, www.igocars.org and Zipcar, www.zipcar.com). Priority commuter spaces may also be reserved for traditional carpools or Metra Feeder Vanpools (provided by Pace Suburban Bus), and could be further incentivized through reduced parking fees. Communities should consider allowing overnight parking for carpool or vanpool uses (as well as other park and ride users) to accommodate reverse commuters who may need use of a vehicle to reach their final destination. For more information on Pace's Metra Feeder Vanpool program visit: www.pacebus.com/sub/vanpool/metra_feeders.asp

Strategies to Accommodate Parking Demand

Implement shared parking: This strategy maximizes the utilization of parking facilities by either sharing one parking facility among multiple destinations, so users can park once and walk to multiple destinations, or capitalizing on varied peak parking hours. In the latter example, parking may be open only to commuter parking during peak commuting times (generally early morning to early evening on weekdays) and available for local restaurants and shops in the evening and on weekends. This strategy, which applies to both off-street and on-street parking facilities, must be well-managed by the municipality and well communicated to users through posted parking regulations (such as types of users and time restrictions) and signage.

Local Parking Case Study

*Community Feeder Routes
City of Naperville*

In communities where parking space is limited, bus feeder routes that are in operation only during rush hours have become viable tools for supplementing parking while increasing access to rail stations. Naperville has several feeder routes operated by Pace to provide access from local neighborhoods to the Naperville and Route 59 Metra Stations. The feeder routes travel up to 10 miles from the station and coordinate with the train schedule. The feeder buses travel through neighborhoods on fixed routes and stop at major employers and destinations. Thirteen feeder routes serve the downtown Naperville station; bus transportation accounts for 18% (740) of all commuters accessing the station. Discounted Pace "10 Ride Plus" passes are available for purchase at the Metra ticket window at the Naperville and Route 59 Metra Stations. These discounted passes are sponsored by the City of Naperville and Metra and provide 11 rides for \$14 (regular price is \$17.50).



Local Parking Case Study

*Mixed-Use Parking Structure
Gateway Center Parking Deck
Village of Palatine*

The Gateway Center in Palatine is a four-story mixed-use parking deck with street level retail and office space on the upper floors adjacent to the Palatine Metra Station. The parking deck provides approximately 1,000 spaces for commuters as well as an additional 300 spaces for the office building and area commercial / retail amenities adjacent to the parking deck. Direct access to the Metra platforms is provided from the exit of the garage.





El Jardin

Maximize on-street parking:

Providing on-street parking for a variety of uses is an economic way to increase parking supply in a TOD area. Since parking spaces are designated within existing street right-of-way, there is minimal cost to implement and leaves valuable land available for other development. On-street parking is convenient to users and also creates a buffer between moving traffic and pedestrians on the adjacent sidewalk, providing for a more pedestrian-friendly environment. Parking spaces within a ¼ mile of the transit station can be designated for commuter use during peak commuting times, and be shared with other users on evenings and weekends. On-street parking alone likely will not be an adequate amount of parking for both transit users and visitors to a TOD area, and should be implemented in conjunction with other parking strategies. As on-street parking can impact bus operations on arterial streets, communities should work to maintain a balance between on-street parking in TOD areas and the need for bus services to operate efficiently on arterial streets.



transit-supportive development. Remote parking can be used either for overflow commuter parking or for special events. Drivers who park in a remote lot are provided with a shuttle or other transit service to take them to the station or TOD area. Many drivers may view this option as inconvenient and undesirable, so should be implemented only if other identified strategies have been implemented or are determined to be infeasible.



Reserve parking for future expansion: This strategy applies to both surface lots and structured parking depending on the land constraints and costs in your community. Structured parking garages can be designed to add levels when the need is warranted and additional funds are available. Land slated for future surface lot use can either remain vacant or used for non-permanent uses until the demand for more parking is warranted.

Provide structured parking:

Land costs and availability often drive the decision between structured and surface parking. In TODs, land costs are generally higher and land may be best used for residential or commercial development, leading to the desire for structured parking. New structured parking facilities can also incorporate first floor retail or be “wrapped” by residential uses, improving the streetscape. While structured parking is generally more suitable to TODs than surface parking, the cost of structured parking must also be taken into consideration: an above-ground parking structure can cost up to six times the cost of an equivalent surface parking lot built on the same land.



Local Parking Case Study

*Shared Surface Lot
Oak Park Avenue Commuter Lot
Village of Tinley Park*

Tinley Park’s Oak Park Avenue Station has surface parking for 738 vehicles. The Village charges commuters to purchase permits to park in the lots if arriving before 11:30am during the weekdays; after 11:30am any available spaces are free to use. On weekends, the lots are free of charge. The parking lot is a shared use lot, meaning it is used for a variety of uses in addition to commuter parking. There is a farmers market in the lot on Saturday mornings during nice weather. All year round during the evenings and on weekends local restaurants are allowed to use the lot for their patrons. Allowing for parking during off-peak time for commuter parking helps reduce the need for additional parking for other uses, freeing up more land for development.



Commuter Parking Guidelines

Metra Future Parking Needs

While one of the main goals of transit-oriented development is to reduce vehicle miles traveled (VMT) by improving multi-modal access to a transit station and putting jobs and housing within walking distance of the station, many riders will continue to access the station by driving for a variety of reasons. In order to allow time to plan for and find funding for additional parking needs at a station, Metra prepares 30-year ridership projections for existing stations based on existing ridership and household population projections in specific geographic marketsheds that are then translated into potential parking needs. This helps to prevent situations in the future where ridership has increased and there is demand for additional parking but the existing parking is full and there are few opportunities for expansion.

Not all stations will need additional parking based on the projections. For those that do, Metra will provide a range: the low end assumes the ridership increase will be met by 50% of riders accessing the station by driving and the high end assumes 100% will drive. The expanded parking does not need to be built immediately or all at the same time. Municipalities are encouraged to look at all opportunities for increasing parking, including on-street or shared parking at existing lots in the TOD area, and phase in when funding is available or opportunities for expansion are identified. Metra looks for opportunities to partner with municipalities or other

Local Parking Case Study

Leased Lot
St. John the Baptist Church Parking Lot
Village of Winfield

The Village of Winfield leases parking spots from St. John the Baptist Church for Metra commuter uses. Commuters are able to use the 107-space lot, about a block south of the station, between 5 a.m. and 6 p.m. Monday through Friday. The Church and Village split revenues generated from parking fees. Winfield charges commuters \$65 for three-month parking permits or \$1.50 a day. The Village made the agreement with the Church as a response to a waiting list of more than 50 people.

In 2005, the State of Illinois passed a law making leases with religious institutions for the purpose of commuter parking more feasible. State Property Tax Law 35 ILCS 200/15-125 makes parking areas owned by any religious institution exempt from property tax if the lot is used for commuter parking and the parking is provided for free. Leasing parking from a religious institution allows for mutual benefits: the institutions capture a profit off an underutilized parking lot while commuters have more opportunities to park near the station.

entities to provide funding to support parking pending funding availability and demand.

Lot Ownership / Maintenance

The CTA owns the majority of their 16 park and ride lots and contracts out maintenance to private companies. Detailed information on the CTA's park and rides can be found here: www.transitchicago.com/parkandride/default.aspx

Pace owns and operates 11 park and ride lots throughout the region; 10 other park and ride lots served by Pace are under private or municipal ownership. Details and locations of Pace's park and rides can be found here: www.pacebus.com/sub/bus_system/park_n_ride.asp

Metra does not own or operate the majority of park and ride lots in their system (with the exception of the lots at stations within the City of Chicago). The lots are generally owned by the municipality, mass transit district, or by the Railroad if the station is along the BNSF line or one of the Union Pacific (UP) lines. In most cases, the municipality is responsible for maintaining the lot. If you are unsure of the lot ownership or maintenance responsibility of your station, contact Metra's Community Affairs Department.

Location of Metra Commuter Park and Ride Lots

Metra prefers that park and rides are located within line of sight of the station and/or platforms, no further than a quarter-mile (1300') from the platform. This allows riders, primarily new or infrequent riders, who are accessing the station by driving to easily see where the parking is located and determine if parking is available. Lots that may have the line of sight blocked by nearby buildings or other obstructions must be supplemented with clear wayfinding signage.



ADA Accessible Parking Spaces

Accessible parking spaces must be provided at all park and ride lots, following the requirements of the Illinois Administrative Code (chart below). According to this code, “Accessible parking spaces serving a particular building [station] shall be located on the shortest accessible route of travel from adjacent parking to an accessible entrance.”

Total off-street parking spaces provided	Required minimum number of accessible spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of total number
Over 1000	20 plus 1 for each 100 over 1000

Source: Illinois Administrative Code

Process to Redevelop a Commuter Parking Lot / Joint Development

Many communities, through the planning and redevelopment of their TOD areas, may determine that a park and ride lot may not be the highest and best use for a particular parcel. Because the majority of these lots were built using federal funds, the process to redevelop the lot into a use other than parking includes working with various agencies.

Joint development is the term used to describe transit-oriented developments (commercial, residential, industrial or mixed-use) with a direct connection to transit service or facility that include the use of Federal



Transit Administration (FTA) funds or federally-funded real estate. Most instances of joint development in the Chicago region are public or private development on existing commuter park and ride lots that were built with FTA funds. For these types of transit-oriented joint development, the FTA states that the project must generate either a one-time payment or a revenue stream equal to the current market value or the appraised value of the property, taking the highest and best transit use into account. Also keep in mind that Metra requires a one-for-one replacement of the existing parking at all park and rides serving their stations. Please note that communities need to find funding for replacement spaces as Metra and other grant sources do not fund replacement spaces.

The following link provides the Final Agency Guidance on the Eligibility of Joint Development Improvements under Federal Transit Law: <http://edocket.access.gpo.gov/2007/pdf/E7-1977.pdf>

Major Steps to Redevelop a Commuter Parking Lot

1. Identify who owns the lot:
 - a. If Pace or CTA, lot is likely owned by that Service Board.
 - b. If Metra, lot may be owned by one of the following: Railroad (BNSF or UP), Mass Transit District, municipality, Metra, private entity.
2. Once ownership is verified, determine how the lot was paid for:
 - a. If local funds, work directly with the owner of the lot on any proposals for redevelopment.
 - b. If federal funds (Joint Development), contact IDOT- Department of Intermodal Transportation to discuss the specific steps that need to be taken. These steps may include:
 - i. Getting current fair market value for the site, based on the highest and best use, or highest and best transit use, taking into account local transportation, land use, and economic development plans. Highest and best transit use is the combination of residential, commercial, retail, public, and/or parking space and amenities to be included in the joint development project that produces the most social, economic, and financial benefit to the transit system and the local community.
 - ii. Repayment of the FTA grant used to build the lot to remove the federal interest on the site.
 - iii. Issuance of a waiver to change the use of the lot, if necessary.
 - iv. NEPA regulations may apply; determined on a case-by-case basis.

Green Parking Design Strategies

In recent years, an increasing number of municipalities have expressed interest in environmentally-friendly or “green” strategies and solutions for infrastructure and development projects, often referencing them in TOD plans. Stormwater management in TODs and other urban areas is an important issue because of the amount of impervious pavements, primarily in the form of parking facilities and streets, causing an increase in surface runoff and pollution of local waterways. This section describes some of the most common green strategies that can be used for streets, sidewalks and parking facilities in TOD areas to manage stormwater and promote sustainability and livability.

Permeable Pavements

Stormwater runoff can be mitigated through the use of permeable pavements, which allow water to soak through the surface and infiltrate directly into the ground. Types of permeable pavements include porous asphalt and concrete, permeable joint pavers and reinforced gravel or grass paving. Due to a reduced load bearing capacity, permeable pavements are most appropriate for use in parking lots, alleys, sidewalks, crosswalks or on-street parking stalls. The use of light colored permeable pavements can also help decrease the urban heat island, by reflecting more and absorbing less sunlight. To maximize stormwater benefits and provide increased landscaping, permeable pavements should be implemented in conjunction with bioswales.



Bioswales

Bioswales, also known as vegetated swales, are long, shallow landscape elements designed to capture and convey surface runoff water while filtering out silt and other pollutants. They consist of an open linear drainage way with gently sloped sides



filled with a combination of grass, trees, groundcover or shrubs. The use of native vegetation is preferred, as it is adapted to local soil and weather conditions, resulting in less maintenance or replacement. Bioswales are appropriate for use in parking lots, within street medians or along arterial streets.

Infiltration and Flow-Through Planters

Infiltration planters and flow-through planters (also known as filter boxes) are two types of planters that can aid in stormwater management in space-constricted TOD areas.

Infiltration planters allow for water to soak directly into the soil while flow-through planters have impervious bottoms and instead allow for water to slowly infiltrate through the planting bed before being directed to an underground drainage system or catch basin. Both types of planters can be filled with native trees or other vegetation, which are irrigated by the same water that filters through. These types of planters are especially effective in parking lots or between sidewalks and on-street parking where space is often limited.



Energy Efficiency Lighting

Energy consumption and light pollution can be reduced by maximizing the use of natural light inside a parking structure or installing energy efficient lighting for both surface lots and structures. Consider using LED lighting, which is more energy efficient and provides brighter lighting. According to GOOD online magazine, a municipal parking garage in Raleigh, North Carolina, switched from stale orange fluorescents to LEDs. The benefits include a 40% reduction in the garage’s electric bill, and the number of drivers who felt “very safe” in the parking lot increased 76 percent.



(GOOD online magazine, 2007)

Parking Financing

Various types of Federal and local-level funding sources are available to help finance the planning, design and construction of parking facilities:

Federal Funding Opportunities

CMAQ

One program that can potentially fund the construction of transit-related parking structures is the Congestion Mitigation and Air Quality (CMAQ) improvement program, funded jointly by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), which is administered locally by the Chicago Metropolitan Agency for Planning (CMAP).

FTA: Urbanized Area Formula Program

This program makes Federal resources available to urbanized areas and to state governors for transit capital, operating assistance, and transportation-related planning. Various projects are eligible including the planning, engineering design and evaluation of transit projects and construction of maintenance and passenger facilities (including parking facilities).

FTA: Metropolitan & Statewide Planning

This program provides funding to support planning for making transportation investment decisions in metropolitan areas and statewide. State DOTs first receive the funding, then can allocate funding to MPOs, who in-turn can appropriate funding throughout their specific region(s).

Local/Regional Funding Opportunities

Local and/or Regional Tax Measures

Regional tax measures, including Tax Increment Financing at the local level, are a potential source of funding for transit-related projects. Tax levies, if approved, can be allocated for specific infrastructure needs including the construction and maintenance of parking facilities.

General Obligation Bonds

Bonds are a primary source of funds for the construction of parking facilities. These bonds can be supported through the municipality's property tax base, the tax base of a designated transit district, or revenue streams from parking meters and permits.

Structured and Surface Parking

Construction, Operating and Maintenance Costs

While parking structures are significantly more expensive to construct than a surface parking lot, the long-term value of freeing up land for other uses can help justify the associated construction costs. Parking structures can enhance auto access to TOD areas by offering a high volume of parking in one centralized location, as opposed to smaller, dispersed lots. Municipalities should consider completing a cost-benefit analysis to determine if a parking structure is economically feasible before design and engineering begins.

The cost of a parking structure depends on various factors including land cost, number of levels, size, angle and number of parking spaces, soil conditions and design elements. Construction costs also include architecture, engineering, design, project and construction management costs. Land cost is a major factor in the cost of parking, and is not included in either the hard or soft costs. Underground parking is extremely costly to construct due to the high costs of digging, grading and complex structural engineering design.

Municipalities will also want to consider costs associated with operating and maintaining the parking facility, such as snow-removal, lighting and fee collection. Surface lots need to be sealed and restriped every 2-5 years and repaved every 5-10 years. Structured parking facilities may require major reconstruction or replacement every 20-40 years. Parking structures should be seal-coated every 2-3 years. Commuter parking fees collected at Metra stations must be kept in a separate account and used only for maintenance and operation expenses associated with that parking facility, including restriping and repaving. Municipalities also need to fund a complete 20-year rebuild of commuter surface lots.

Estimated Construction Costs (per space)		
Type	Low	High
Surface	\$3,000	\$10,000
Structure	\$15,000	\$30,000
Underground Structure	\$20,000	\$50,000

Sources: Victoria Transport Policy Institute (Parking Costs, 2007), Carl Walker, Inc. (Parking Construction Costs Outlook, 2011)

Tax Increment Financing

Tax Increment Financing (TIF) is a development tool that local governments can use if they lack financial resources to improve infrastructure or provide incentives to attract private development. The use of TIF does not raise local taxes, reduce services or utilize existing general municipal revenues, but encourages joint development and public-private partnerships. When a TIF District is created, the value of the property in the designated area is established as the “base value”. Any incremental value increase collected during this time can be reinvested in the area for TOD related projects.

Other Funding Sources

Public-private partnerships may also be created to include private financing parking facilities, especially when integrated into a mixed-use development. Developers may agree to construct all or a portion of a parking facility with the ability to collect any revenues generated from the structure.

Local Parking Case Study

*Shared-Use Parking Deck
Larch Avenue Parking Garage
City of Elmhurst*

The Larch Avenue Parking Garage, located at Larch Avenue and First Street, is a five-story, 253-space facility that opened in September 2010 to serve downtown Elmhurst businesses and the Metra station. The City recently reached an agreement with Metra to lease out 125 parking spaces within this garage for Metra commuters on a first come, first served basis, with the City responsible for setting parking rates with Metra approval. Snow removal, payment of utilities, and routine maintenance are the City's responsibility.



TribLocal photo by Annemarie Mannion

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Additional Resources

The resources below provide additional details on many of the parking and access strategies addressed in this document, and were useful resources in creating this report.

Bay Area Rapid Transit (BART) Station Access Guidelines:

http://www.bart.gov/docs/planning/access_guidelines.pdf

Washington Metropolitan Area Transit Authority (WMATA) Station Site and Access Planning Manual:

<http://www.wmata.com/pdfs/planning/Station%20Access/SSAPM.pdf>

Municipal Implementation Tool: Parking Management Strategies (Delaware Regional Commission):

<http://www.dvrpc.org/reports/MIT006.pdf>

Parking Management Strategies (Chicago Metropolitan Agency for Planning):

<http://www.cmap.illinois.gov/strategy-papers/parking>

Parking Management Strategies, Evaluation and Planning (Victoria Transport Policy Institute):

http://www.vtpi.org/park_man.pdf

Maryland Department of Transportation Office of Real Estate:

<http://www.mdot-realestate.org/tod.asp>

San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook:

<http://www.flowstobay.org/documents/municipalities/sustainable%20streets/San%20Mateo%20Guidebook.pdf>

City of Seattle Green Parking Lots:

http://www.seattle.gov/DPD/cms/groups/pan/@pan/@sustainableblding/documents/web_informational/dpds_007572.pdf

Mixed-Income Transit-Oriented Development Guide (Center for Transit-Oriented Development):

<http://www.mitod.org/todtargetedparkingregulations.php>

Transportation Cost and Benefit Analysis II—Parking Costs (Victoria Transport Policy Institute):

<http://www.vtpi.org/tca/tca0504.pdf>

Parking Ratios White Paper (Town of Chapel Hill, NC):

http://townhall.townofchapelhill.org/archives/agendas/ca020918/Attachment%204%20-%20Final%20Parking%20Paper%208-12-02.htm#_Toc16933071

Reforming Parking Policies to Support Smart Growth (Metropolitan Transportation Commission):

http://www.mtc.ca.gov/planning/smart_growth/parking/parking_seminar/Toolbox-Handbook.pdf