Aurora Parking & Mobility Enterprise

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Station Area Parking Management Policies

Includes a discussion of station area parking management practices, including a general framework and specific parking management recommendations. This section includes a review of parking demand projections for each station and specific recommendations for opening day and future development projections.

Prepared by
Kimley»Horn
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Station Area Parking Management Policies

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General Station Area Parking Policy

Parking management involves the use of programs and policies that affect the use, price, and availability of parking. Parking management ranges from simple time limits to sophisticated computer-based systems that direct traffic flow to available parking. Nationwide, communities are using parking management to support their transportation, environmental, and community development objectives. Recent trends call for a closer look at transit station area parking.

For the City of Aurora, policy issues related to transit-oriented development (TOD), circulation, and management of access at station areas are important strategic directions. With the opening of light rail, station areas will be used more intensively as their transportation and land use focus increases, and they become increasingly important and influential elements of their community development and economic development plans. Each of the I-225 station areas is unique, from the perspective of existing and future land use development to the role the transit system will play as light rail is integrated into access patterns within station areas. The development evolution of each station area will be different, and therefore, the level, degree, and breadth of parking management will need to be tailored to the specific demand dynamics of that location.

Parking management can ensure that the available parking is used in an efficient manner in keeping with the goals for the transit system and the affected station area communities. The Aurora Parking and Mobility Enterprise Business Plan addresses parking and other access issues that are anticipated with the opening of the new light rail system. It provides guidance on the organization, structure, and strategies the City may consider on a system- and station-specific basis. With respect to parking, the Plan guides the City of Aurora as it considers existing parking management efforts and creates new strategies (a tool box) that make station areas functional, accessible, and attractive.

Finally, many entities control parking. The City of Aurora is responsible for managing on-street and municipal off-street parking, setting development standards for private development, and facilitating traffic flow. The Regional Transportation District (RTD) is responsible for parking it owns and controls at stations. Finally, property owners, employers and merchants are responsible for managing their own private parking. Many people (e.g., neighbors, businesses, and commuters) have a stake in station area parking, and their interests and perspectives may vary quite considerably. Studies have shown that when the various stakeholders work together they can achieve “win-win” parking solutions that promote community development and community livability.

What ties all of this together is a consistent set of policy directives that form the foundation for decision-making and frame the intent and purpose for what will ultimately be changes in parking management (and the status quo) over time. With the development of the Aurora Parking and Mobility Enterprise Business Plan and its tool kit of parking solutions, the policies outlined below will hopefully encourage such collaborative community-based solutions. Seven policies are described below and should serve to frame decision making in the future in a manner that always best serves the distinct character of each station area. Each policy is followed by a set of strategy tools derived from the Aurora Parking and Mobility Enterprise Business Plan that would activate the policy intent at different stages of a station area’s development.

General Policy Framework - Station Area Parking Management

The City of Aurora's station area parking management policy will embrace a comprehensive approach that emphasizes leveraging parking infrastructure investment as a key element of community and economic development. The policy also strives to recognize and consider the unique character of each station area and the priorities that have been established for the use of parking supply and the role that transit can play in defining parking demand and influencing land use and density.

Parking investments made by the City in station areas should favor those that first augment and maximize existing parking assets in a station area (public and private supply). These types of investment ensure that underutilized parking supplies bring not only additional "capacity" for accessing a station area but can be the most cost-effective approach to parking management, minimizing (or right-sizing) what will be more costly investments in future parking structures. To achieve this level of efficiency, projects that offer significant shared parking benefits are strongly encouraged. Without shared use opportunities, the role that the City can play will be limited to parking supply (on- or off-street) that it owns and controls. In these cases, it is imperative that the City establish priorities for use, and then appropriately utilize tool box strategies for time management, pricing, and supply to accommodate priority users and influence secondary and non-priority users to minimize conflicts and enhance transit and alternative mode options.

The station area parking management policy also recognizes the benefit of integrating parking management with goals and objectives for transit and alternative mode use as appropriate to unique station areas. The policy recognizes that user priorities have and will be established in station areas, resulting in potential conflicts between multiple user types (i.e., employees, visitors, students, and residents) for limited parking supplies. As such, balancing access by mode (car, bus, bike, walk, and rideshare) will reduce conflicts and result in a policy that supports strategies that give people travel choices. To achieve this, the policy will support and inform public and private investment in incentive programs to enhance transit and alternative mode options, implement parking pricing based on thresholds for demand and managing access for priority users, and establish programs to manage the impacts of economic growth on neighborhood areas adjacent to station areas.

The goals of this policy element are to better integrate parking management and infrastructure into the urban fabric and to contribute to vital, livable, and connected transit station areas. The following key policy elements support this general framework policy.

KEY POLICY ELEMENTS

A. Priority Users – Manage parking supply to ensure that priority users are accommodated.

Most of the people visiting the station areas will arrive by automobile and need a place to park their vehicle. While there may or may not be sufficient capacity to meet overall demand, the best parking spaces with the highest demand will need to be allocated by a system that identifies priority users of parking spaces. The policy recognizes that the priority user of parking will vary by station, neighborhood, and perhaps

even by block. For instance, employees and visitors to businesses at the Florida station are seen as having a higher priority to available parking than transit riders seeking a space to park their vehicle in Florida, then leaving via transit to their ultimate destination. In this regard, Florida is viewed as a "destination station." The reverse is likely true at Nine Mile station where the priority user is indeed the transit rider, requiring different parking formats and strategies that allocate parking to visitors as a secondary priority. Nine Mile is viewed as an "origin" station, with parking serving as a means to directly access the transit system as a feeder to other destinations. The Aurora Parking and Mobility Enterprise Business Plan embraces a typology approach for station areas that identifies the priority for both on- and off-street parking. The constant challenge is to balance the need for commuter parking for Aurora residents accessing the transit system with the potential to create TOD in the station area and build "places" to serve local businesses and residents.

Policy A: Strategy Tool(s)

- Designation of station area as origin, destination, or hybrid (balanced origin and destination) typologies.

B. Measurement and Decision Making Threshold – Parking management strategies will be implemented based on observed demand and meeting the needs of prioritized users. The most effective measure of performance (and strategy deployment) is the 85% Occupancy Standard.

The 85% Occupancy Standard (or 85% Rule) is an operating principle and industry-based management tool for coordinating parking supply and demand, while promoting increased trip capacity (within the supply itself or in tandem with other modes). When occupancies routinely reach 85% in the peak hour, more intensive and aggressive parking management strategies are called for to assist users in finding available parking. The "85% Rule" standard will facilitate the City's and community's ability to make reasonable and effective decisions regarding regulations, pricing, enforcement, and other decisions related to capacity management.

The outcome is to manage a supply of parking to ensure that there are available parking stalls (a minimum of 15%) and a convenient time factor involved in getting a priority user parked and to their desired destination. The 85% standard also provides for a reasonable buffer of parking to minimize parking constraints and allow for timely strategy deployment before supplies become over constrained and contribute to loss of business and/or spill over into adjacent areas (e.g., neighborhood zones). In short, the 85% Rule is a common standard. How it is applied in different settings depends on how intensely a City wants to manage a supply to accommodate priority users.

Policy B: Strategy Tool(s)

- Parking occupancy/utilization studies
- On-site occupancy counter systems (off-street facilities)
- In-lane sensor systems (on-street)
- Park+

C. Integrated Parking Management – To effectively manage access for priority users and balance community access, the City understands and will manage (as necessary) the important relationship between on- and off-street parking resources.

An integrated parking supply recognizes the strategic relationship between on-street parking and public off-street parking supplies. When fully integrated, these two inventories of parking leverage each other, providing "the right stall" for specifically identified user groups in a manner that is seamless and intuitive. The end result is a parking system that is efficient and breaks down any discrepancies between perception and reality in the mind of the user that parking is available.

A well-managed and integrated system reduces the long-term costs of parking development as existing inventories are maximized and more accurately reflect true demand. Businesses are better supported as once perceived bottlenecks and constraints in parking are reduced and/or eliminated. Most importantly, the customer (visitor, employee, and resident) is better served as larger "supplies" of parking are made more apparent, with clear choices related to purpose of trip, location, and cost readily available.

On-Street

On-street parking is a finite supply of parking that is preferred by most users. If priority users are prevented from using it, then the parking resource is inefficiently used, contributes to conflicts between users, and is not supportive of off-street parking or alternative mode options. The role of on-street parking in any parking management plan should be to ensure access to defined priority users. If on-street parking is intended for visitor access, it is likely that it is time limited. If the priority is for employees or residents, then systems should be developed to ensure that employees and residents are "identified" (e.g., permits) so that other long-term parkers (i.e., employees from out of district, park-and-ride users) do not monopolize the supply. This is critical in areas that have high constraints for parking access. Unfortunately, most cities tend to focus on regulation of new parking developed off-street (a code based approach) and do not take active measures (outside of core areas) to manage public on-street parking assets (a management based approach). There are many factors that underlie this situation—cost, time, determining bureau or agency responsibility, etc.—but the basic relationship between an efficient system of access and land use is best served by effective on-street parking management.

On-street parking management in station areas will serve to direct and guide users of an area to the appropriate access points, whether that is on-street parking, off-street parking, remote parking, or an alternative travel mode. On-street parking is a critical gateway point into a city's access system. If it is well prioritized and well managed, all other points and modes of access are more efficiently served.

Relationship to Off-street Parking

A well-managed on-street parking system significantly influences off-street parking. By controlling access on-street to support specific priority users, while at the same time managing turnover and capacity, the City then:

- Effectively supports minimum and maximum parking standards (in code) by "truing" up use of the off-street supply (e.g., if on-street is not available to employees, then off-street system is better utilized and

right sized).

- Maximizes off-street supply by pushing non-priority users to available off-street parking.
- Maximizes alternative modes.
- If on-street parking is priced (as appropriate), it is more realistic and feasible to price off-street.
- Where public parking is in play, the full spectrum of management options should be considered (i.e., time stays, enforcement, rates, etc.).

On-street parking has a significant impact on use of off-street supply (whether the off-street supply is in City control/ownership or not). Most users prefer on-street parking when and where it is available. By maximizing its use for priority users, cities can better influence users into off-street supply, support right sizing parking, influence pricing systems and support other transportation modes as reasonable options to parking.

Policy C: Strategy Tool(s)

- Time restrictions
- Paid parking (pay stations, variable rate pricing)
- Coordinated pricing (in off-street facilities in City control/ownership)
- Permit parking
- Enforcement

D. Shared Parking – Strongly support shared parking opportunities in station areas, particularly when investing public funds.

Given that off-street parking in most station areas will be in private control, the concept of shared parking is crucial. Active pursuit of opportunities in existing supply and implementation of shared-use strategies will optimize already built supplies and reduce (over time) the amount of new parking that needs to be developed in potentially costly structured facilities.

The City can play an important role in establishing shared-use opportunities as a facilitator, collector of data and information, and through public investment. Bringing information to the table with owners of private and underused supplies of parking can lead to access/capacity enhancements in affected station areas, as well as create positive economic (revenue) value with available supply.

Because of the high cost of investing in structured parking, it is in the City's best interest to get the most benefit from public fund investments that maximize existing supplies first. The effective application of shared parking strategies, where applicable, can extend the reach and impact of investments in public parking and greatly contribute to achieving a better return on infrastructure investments.

When the City does invest funds in new parking development, it should require the greatest flexibility of management for the parking supply to ensure availability of use to priority users as well as opportunities to serve the station area in off-peak hours. In other words, investment of public funds in parking that would allow excessive restrictions on the use of shared spaces will reduce the value and effectiveness of this policy and should therefore be avoided.

Policy D: Strategy Tool(s)

- Targeted outreach and coordination by City Parking Program Manager
- Parking occupancy/utilization studies
- Targeted investment of public funds
- Integration of shared facilities with on-street management

E. Balanced and Sustainable Community Access –The parking program will be a partner for success in achieving a beneficial balance between parking and alternative modes.

This policy would facilitate the elimination of the all-too-common issue of putting parking into its own "silo." The focus should be on developing an integrated access management strategy for station areas that supports other community goals such as: "walkability," congestion management, public safety, promotion of alternative transportation modes, environmental responsibility, and the creation of places for people. This will require active coordination and collaboration with RTD, station area property owners, employers, and residential communities. "Demand side strategies" should be given equal importance to "supply-side strategies." This will result in coordinated efforts to manage the cost/value relationship of parking (e.g., pricing) and other programs and incentives to enhance the attractiveness of alternative modes (e.g., transit pass programs, bike infrastructure, pedestrian facilities, rideshare matching, etc.) The City of Aurora will work collaboratively with stakeholders and agencies in each station area to establish mode goal targets for each mode of access (auto, transit, bike, walk and rideshare /carpool) and create tools to monitor progress in decreasing single-occupant vehicle usage.

Policy E: Strategy Tool(s)

- Targeted outreach and coordination by City Parking Program Manager
- Special Parking Management Areas
- Formation of parking and/or Transportation Benefits Districts
- Collaboration with and support of formation of station area Transportation Management Associations and/or Business Improvement Districts
- Public investment in infrastructure that supports non-vehicular demand (e.g., pedestrian safety improvements, bike lanes/cycle tracks, bike parking, etc.)
- Program incentives to support transit, biking, walking, and ridesharing

F. Preserving neighborhood livability – Ensure that growth in station area vehicle trips does not encroach into neighborhoods.

As is already the case in some neighborhoods, the combination of convenient transit service and the lure of free all-day parking will continue to draw commuters who seek to park around the station areas. The residents in the neighborhoods around the station areas will need to be protected by some form of permit parking system.

Neighborhood parking permit programs were first created in response to the recognition that traffic generation resulting from growth in adjacent commercial business districts caused high levels of parking congestion. This congestion was associated with commuters or visitors who would spill over into

neighborhood enclaves as a result of parking constraints within the business district/station area or as means to escape parking pricing and more aggressive parking management.

Neighborhood parking permit programs are intended to ensure that on-street parking spaces remain available for local residents within a specific "permit district boundary" and may restrict parking for visitors, employees, or "non-residents" during certain or all hours of the day and night. The programs generally contain standard elements and are "hunting licenses" that aid, but do not guarantee, finding street parking for residents. In other words, neighborhood permits do not guarantee an on-street space in front of a specific residential address, but the entitlement to park within the permit district boundary.

Some cities limit/restrict the number of permits by address and/or whether the residential address has parking of its own (a driveway or garage) or a parking lot (in the case of multifamily residential). Most sell (or allot) daily guest permits, or graduate the cost of permits by number requested. Prices could also be tied to actual local supply or utilization.

A scan of 11 cities with neighborhood permit programs was conducted and the following primary themes emerge from the scans that are common to most programs[1]:

1. The neighborhood program limits permits to areas that are zoned residential and are subject to on-street parking space competition from non-resident commuters (employees) or visitors to adjacent area attractions—parking generators like adjacent commercial business/retail districts, hospitals, universities, and transit stations.
2. Most of the permit programs have minimum size or number of block faces required for consideration. In other words, the programs create a permit district rather than a block-by-block system of management.
3. None reserves specific parking spaces for specific residences, while some require that a vehicle be parked within a specific number of blocks of the registered address.
4. The majority of cities scanned require a resident petition process and Council concurrence. Some require occupancy data and parking surveys/studies to initiate.
5. The majority charge an annual fee for the permits (usually established at a level of city cost recovery).
6. The majority limit the number of permits per residence.
7. Enforcement is generally by complaint and random patrols combined with signage.

The issue of potential station area parking spillover into residential neighborhoods is both an issue of access/congestion and livability. It will be prudent for the City of Aurora to, at minimum, develop/refine its policy and process for establishing neighborhood parking permit programs. The new neighborhood parking permit policy should provide residents the opportunity to work with the City to initiate a program to respond to their perception of need as station area growth evolves. Using this policy the City will work collaboratively with neighborhoods to implement permit programs to meet the goals of the community. To get a policy and process in place ahead of anticipated growth is strategic and sends a message that the City will be responsive rather than reactive to the potential impacts of development in the core areas.

[1]The full list of cities surveyed were Aspen, Boulder and Denver, CO, Boise, ID, Corvallis, Hood River, and Portland, OR, Sacramento, CA, Kirkland, Seattle and Vancouver, WA.

Policy F: Strategy Tool(s)

- Targeted outreach and coordination by City Parking Program Manager
- Establishment of neighborhood parking permit areas
- Enforcement
- Collaboration with and support of formation of station area Transportation Management Associations and/or Business Improvement Districts

G. Community Collaboration – In managing parking in station areas, the City collaborates with the neighboring residents, businesses, and institutions; city and county agencies; RTD; and members of the station area communities. The City's overall goals are to improve the economic vitality of the station areas, preserving the livability of neighborhoods, and increasing multimodal access options.

Successful implementation of the station area parking management policies outlined above will require ongoing collaboration with the affected communities in each station area. All the policies (A – H) will be best coordinated and activated through collaborative efforts in each station area.

The collaboration is intended to provide forums for input and involvement. Collaboration is also intended to create opportunities for sharing resources, developing parking and alternative mode programs, and leveraging investment and infrastructure. As stated earlier, the level of City control over parking resources will vary by station area, which underscores the need to collaborate and partner in developing and implementing solutions that lead to vital station areas.

Policy G: Strategy Tool(s)

- Targeted outreach and coordination by City Parking Program Manager
- Formation of special Parking Management Areas
- Formation of parking and/or Transportation Benefits Districts
- Collaboration with and support of formation of station area Transportation Management Associations and/or Business Improvement Districts

SUMMARY

Parking policies play a key role in influencing individuals' choice of how to travel and land use development patterns. Parking policies also have a major impact on the quality and feasibility of development and growth in transit station areas. As stated in the Aurora Parking and Mobility Enterprise Business Plan, the community will grow and change over the years; therefore, the groundwork for parking management practices and strategies should be laid so that the parking program can grow to meet each unique station area community's needs. The station area policies outlined here can be collaboratively implemented to balance parking demands as well as achieve greater community goals. They can also form a framework of consensus upon which to inform decision-making and responses to changing conditions and emerging opportunities.

Special Area Strategies

This section describes how the parking management strategies mentioned previously in this business plan can be combined to work collectively in special areas within the community. These special areas could include neighborhoods, transit oriented development (TOD) areas that encourage and support mixed use, higher density development, or commercial areas that need the enhancement of parking management strategies to support ongoing business growth.

TOD ZONES

Parking management in TODs is focused on not only supporting the development in the area, but also the nearby transit station. While TODs do utilize similar strategies to other areas, they also include specific strategies to help encourage transit ridership and support mixed-use development. Parking regulations are often at odds with the goals that make TODs successful. On the one hand, there needs to be adequate parking for transit riders and the surrounding developments. However, often there exists an overabundance of parking that encourages the use of a personal vehicle, discourages transit ridership, and consumes excessive amounts of land.

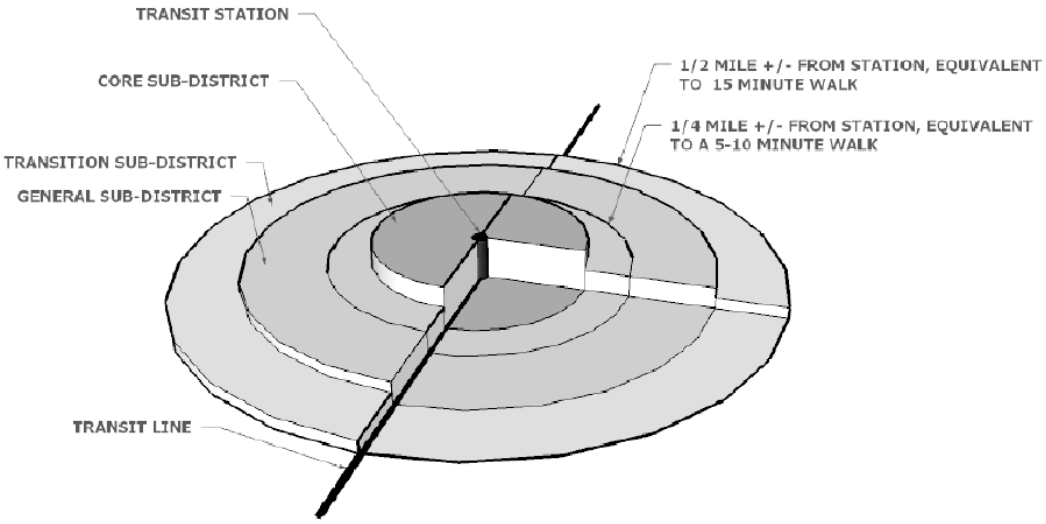
Additionally, a defining component of TODs is mixed-use, high-density development. However, traditional parking regulations that provide parking minimums, would require that each of the uses provide their own parking resulting in an overabundance of parking, which discourages mixed-use, high-density development. To encourage transit ridership and support mixed-use, high-density development, parking maximums can be implemented. Parking maximums give developers flexibility with providing parking and allows them to determine how much parking is necessary for their use based on their knowledge and experience. The use of parking maximums has been successful in curbing the amount of parking that needs to be provided and thus encouraging the use of alternate forms of transportation, including the use of transit. When coupled with the introduction of centralized shared-use facilities and balanced on-street parking areas, the distribution of parking demands within the TOD is supported without the need for every business to provide its own parking supply. When successful, these strategies contribute to the success of TOD design concepts.

Existing TOD Parking Policy

In 2009, the City of Aurora developed a new TOD zone district to encourage mixed-use neighborhoods in areas that will have access to high-capacity transit stations. This zoning, like many TOD areas elsewhere, places a greater emphasis on urban form while also addressing residential densities, public art, and parking. Ultimately, these districts are intended to encourage the use of public transportation and reduce automobile trips. The following are policies that the City has adopted to reinforce these objectives.

- **Sub-Districts –** Each station area is divided into three sub-districts to accommodate the gradual transition of development intensity from the station itself to the neighborhood outside of the station area. Pedestrian access to transit service is the catalyst for densification and the sub-districts reflect this access component. The sub-districts are defined by proximity to the stations with the Core sub-district encompassing areas immediately adjacent to the transit station and less than one quarter of a mile, the General sub-district outside the Core but less than one-half mile from the transit station, and the Transition sub-district outside of General out to the edge of the one-half mile station radius.

Sub-District Framework [1]



» **Minimum and Maximum Requirements –** TOD districts have parking minimum requirements that are reduced by 50% to 67% compared to what is required outside of the TOD district for all land uses. This is coupled with maximum parking requirements within the Core and General sub-districts. These policies reduce the chance of an oversupply of parking where transit access is strongest. They also minimize the chance of an undersupply on the edges of the district which could lead to spill-over into the surrounding communities.

Table 1 Parking Requirements within the TOD District[2]

Use Group /1/	TOD Zoning Sub-District		
	Core	General	Transition
Retail & Personal Service Uses /2/	1.5 spaces / 1,000 gfa **Minimum** 2.5 spaces / 1,000 gfa **Maximum** /3/	2.0 spaces / 1,000 gfa **Minimum** 4.0 spaces / 1,000 gfa **Maximum** /3/	2.0 spaces / 1,000 gfa **Minimum** 4.0 spaces / 1,000 gfa **Maximum** /3/
Restaurant /2/	3.0 spaces / 1,000 gfa **Minimum** 5.0 spaces / 1,000 gfa **Maximum** /3/	1 space / 300 gfa **Minimum** 6.0 spaces / 1,000 gfa **Maximum** /3/	1.0 space / 150 gfa **Minimum** 8.0 spaces / 1,000 gfa **Maximum** /3/
Office /2/	1.0 spaces / 1,000 gfa **Minimum** 2.0 spaces / 1,000 gfa **Maximum** /3/	2.0 spaces / 1,000 gfa **Minimum** 3.0 spaces / 1,000 gfa **Maximum** /3/	3.0 spaces / 1,000 gfa **Minimum** 4.0 spaces / 1,000 gfa **Maximum** /3/
Residential	0.5 space / dwelling unit **Minimum**	1.0 space / dwelling unit **Minimum** except 0.5 space / dwelling unit minimum for senior housing	1.0 space for each multi-family unit & 2.0 spaces for each single-family dwelling unit **Minimum** except 0.5 space / dwelling unit minimum for senior housing.
Short-Term/ Loading	N/A	1.0 space / 20,000 gfa or 10 dwelling units **Minimum**	

/1/ Parking requirements for permitted land uses will be reviewed on a case-by-case basis. These are generalized categories reflective of the Permitted Uses table in the Code and not inclusive of all uses.

/2/ Square feet is gross square feet

/3/ Maximum parking limits may be exceeded provided that all parking supply over the maximum is located within a parking structure.

» **Structured Parking –** Land intensification near the transit station is a priority. Structured parking minimizes the parking footprint and frees up land that can be used for other uses. Parking maximums may be exceeded in a TOD district if the supply over the maximum requirement is contained within a parking structure.

» **On-Street Parking –** An important component of the parking supply equation is the provision of on-street facilities and these are encouraged throughout the TOD district. On-street parking adjacent to a building can be used to meet a portion of the parking requirements for non-residential uses within the building in all sub-districts.

» **Flexible Design –** Current TOD parking policy acknowledges that development and intensification happens over time but also that early development should not hinder the efficiency of future intensification. Surface parking lots could be constructed to accommodate the potential conversion to structured parking or high-density development. Drive aisles in surface lots should be designed so that an urban street standard could be implemented if later needed.

- **Shared Parking –** Shared parking is a priority in TOD districts. These facilities are required in the Core sub-district except for residential uses and are strongly encouraged elsewhere in the TOD district. All of the parking required of public, institutional, civic, and commercial uses may be served by an off-site shared parking facility if it is within an eighth of a mile from a building's front entrance. To ensure a facility operates as intended, a parking demand study may be required of a shared parking proposal. If a shared parking facility has more than one owner, the ownership, improvement, and maintenance must be guaranteed by one of the following:
  - Covenant or contract between owners
  - Creation of special districts and imposition of special assessments
  - Dedication of a parking area to the city pending the acceptance of the city council

Future Considerations for TOD Parking Policy

- **Development Indicators –** The adoption of measureable, objective, and quantifiable indicators that are tied to parking policies help areas gradually adapt to transportation improvements and a new regulatory environment. Existing parking policy states that the TOD district minimum parking requirements take effect once rail transit is under construction or operational. This transition could be too rapid for early development and doesn't respond to future TOD conditions. Parking requirements that adjust once indicator thresholds are passed might help balance parking supply and demand in real-time. The following are possible strategies to make the existing policy more responsive and graduated to changing conditions:
  - Development Intensities – The parking needs at the beginning of the development process are different than the needs a full build-out. As the TOD district begins to intensify, more multimodal trips become possible which reduces the demand for parking. To respond to the early development needs for more parking and the incremental easing of demand as the TOD district reaches build-out, thresholds related to total useable building square footage, number of residential units, and land area remaining for development represent possible indicators that could be explored.
  - Transportation Infrastructure – The provision of high-capacity transit service is the catalyst for a TOD district. While additional service beyond the initial transit improvement might not be provided to a TOD district, additional service within the transit network as a whole increases access to more origins and destinations, decreasing the need for automobile trips. Indicators related to the total number of high-amenity transit lines and addition of high-capacity transit service within the network could serve as useful indicators to help adjust parking requirements to reflect mobility enhancements.
  - Ridership and Travel Behavior – How people use the transportation network can also be useful in adjusting regulations related to parking. As transit ridership increases and trips shift from automobiles to transit, biking, and walking, demand for parking is decreased. Thresholds like total transit ridership, station ridership, and percentage district automobile trips could be useful. It is important to be sure these indicators are set appropriately so that they do not encourage more automobile trips.

Potential Shared Parking Implementation Strategies

- **Public-Private Partnerships –** Often, financial or political constraints make opportunities with both public and private entities possible in solving parking issues. Agreements come in many forms and take case-by-case conditions into consideration. The City could take advantage of public-private partnerships in ways that include, but are not limited to, the following:
  - Concession and Lease – The City builds a facility and leases it to a private entity on a long-term basis. The City can use this tool to meet design and urban form objectives and then pass off long-term

operations and maintenance of the facility. Provisions can also be added that ensure the facility will continue to serve the public's best interest.

- Shared Cost – The City and private entity share the cost of construction. This allows for the consolidation of parking facilities and operations that frees up land for more development. Arrangements might have portions of the structure dedicated to full-time public use or public use could be limited temporally to nights and weekends.
- City Management – The private entity funds the construction of the parking facility (sometimes with assistance from the City), while the City agrees to manage the parking spaces. This will require space allocation agreements for the private entity and a shared vision for the facility operating plan. Once the facility is operational, the City would manage the facility and return excess revenues to the private entity.

- **Fee-in-Lieu Program –** In order to better coordinate a shared parking strategy, a fee-in-lieu policy could be implemented. The City currently requires shared parking facilities in the Core sub-district and a fee-in-lieu program could help the City more actively control and coordinate those facilities. Fees that are collected are used to construct off-site municipal parking that meets the parking needs of development. This fee might be required up-front or financed over a period of time. Developers usually have the option to opt-into the program with all of their parking requirements or just a portion of the required spaces.

  What a developer pays is related to the number of spaces involved and the construction, operations, and maintenance of shared parking facilities. Cities can use an appraisal process that sets the fee on a case-by-case basis or, more commonly, a flat fee per space is set for all participants in the program. Also the City could set a fee that is lower than the actual cost of constructing a structured parking space to incentivize participation into the program.

  However the fee is set, it must maintain a rational nexus with the parking provision requirement. The fee can either go toward the construction of parking facilities or to Travel Demand Management (TDM) programs because of their impact on parking demand. Reducing demand through TDM can be significantly less expensive than the addition of more spaces if used effectively.

  Ultimately, a fee-in-lieu strategy has certain pros and cons for both the City and developers to consider:

  - Pros
    - Flexibility – In-lieu fees give developers an option to meet parking requirements off-site where providing all the required parking spaces on-site would be difficult or extremely expensive. The City also has the flexibility to respond to external forces like new transit service, transportation improvements, or large developments.
    - Removing Barriers – Developers often request parking variances when providing the required parking might present undue hardship. These variances create unearned economic windfalls, granted to some but denied to others. If developers can pay cash rather than provide the required parking, cities do not have to grant parking variances and can therefore treat all developers consistently.
    - City Goals – Parking can be managed to achieve the City's land use, transportation, urban form, and economic vision. The City can put public parking lots and structures where they have the lowest impact on vehicle and pedestrian circulation. Less on-site parking allows continuous storefronts without gaps for adjacent surface parking lots. To improve the streetscape, the City could dedicate the first floor of the public parking structures to retail uses. Developers can undertake infill projects without assembling large sites to accommodate on-site parking, and architects have a greater range

of design options that can translate into more attractive buildings. In lieu fees also allow adaptive reuse of historic buildings where the new use requires additional parking that is difficult to provide. The in-lieu policy therefore makes it easier to preserve historic buildings and rehabilitate historic areas.

- Municipal Economics – Parking can be constructed early without inflation and sold at market rate as build-out occurs. Operations of the facilities can also be cost-neutral.
- Shared Parking – With a shared parking strategy, the City is more likely to get the right amount of parking, in the most efficient location, serving the correct mix of uses. Public parking spaces allow shared use among different sites where the peak parking demands occur at different times. Shared public parking is more efficient and cost effective than single-use private parking because fewer spaces are needed to meet the total peak parking demand. Shared parking also allows visitors to leave their cars parked while making multiple trips on foot, and is one of the easiest ways to make better use of scarce urban land.

» Cons

- No Guarantee – Parking is often built ahead of development without a guarantee that development will occur. Cities may intend to use the in-lieu fee revenue to finance public parking, but they do not guarantee when or where the parking spaces will be provided which increases uncertainty for developers. To address this concern, the City could build public parking structures before receiving the in lieu fees. The in-lieu fees are then used to retire the debt incurred to finance the structures. The city could also return the in-lieu fees if it does not provide the parking within a certain time or delay collecting the in-lieu fees until the revenue is needed to construct the public parking.
- Lack of On-Site Parking – Parking is a valuable asset for any development. A lack of on-site, owner-controlled parking can reduce a development's attractiveness to tenants and customers. While a lack of on-site parking is a real disadvantage, developers who are concerned about this problem can normally provide the parking rather than pay the fee.
- High Fees – The City may not construct and operate parking facilities as efficiently as the private sector. For example, the City may pay extra to improve the architectural design of parking lots and structures. The resulting in-lieu fees may be high. Although some cities charge high in lieu fees, most set their in lieu fees lower than the cost of providing a public parking space. Because the fixed cost for ramps, elevators, stairwells, and curb cuts can be spread among more spaces in large public parking structures, economies of scale in building these structures can further reduce the in-lieu fees.
- Fewer Parking Spaces – In-lieu fees will reduce the parking supply if the City provides less than one public parking space for each in-lieu fee paid. A smaller parking supply can put an area at a competitive disadvantage. Even if an in-lieu policy does reduce the parking supply, shared public parking reduces the parking supply needed to meet the sum of all individual peak parking demands.

PARKING BENEFIT AREAS

Benefit areas are defined areas that are designated by the residents and/or business owners to improve parking availability and raise revenues that can be reinvested back into the community. Once a benefit area is identified, the City often provides the corresponding parking management, with operational costs reimbursed by the parking revenues from the management of spaces. Excess revenues are returned to the businesses or residents in the area, typically in the form of mobility enhancements, eco-passes, or physical improvements to enhance the area's function or appearance.

- **Paid Parking –** Paid parking is used as a mechanism to control the parking demands in the area by encouraging turnover and improving access to businesses.
- **Time Restrictions –** Time restrictions can be applied to identify how long users are allowed to park. This strategy is often implemented when parking needs to be managed but demands are not so high that paid parking is appropriate. The intent is to encourage turnover and improve access to businesses.
- **Reinvest Revenues –** This is the distinguishing characteristic of Benefit Areas. The revenue that is earned from the parking strategies (paid parking or permits) is reinvested back into the area. The money is often used for community improvements such as landscaping or lighting, mobility improvements such as bicycle or pedestrian amenities, or to subsidize transit eco-passes for employees and residents in the benefit area.
- **Coordinate Enforcement With The Parking Regulations –** Any parking regulations that are implemented need to be enforced consistently. Lack of enforcement can result in a lack of compliance with the parking regulations and ultimately an inability to accomplish parking regulation goals.

SPECIAL PARKING MANAGEMENT AREAS

Management Areas are defined areas that exhibit unique characteristics that are different from the surrounding development, such as a core area or commercial area. These areas require the use of parking regulations to help manage and balance competing parking demands. Designation of a management area is useful to distinguish the area as separate from its surroundings and provides the opportunity to implement parking strategies that manage the parking specifically for the management area. The following are parking strategies that are often used successfully in management areas.

- **Public/Private Collaboration –** This allows private parking assets to appear as a public parking asset through creative branding and marketing. The intent of a program like this is to counter the perception that there is no public parking by making publicly accessible spaces feel like part of a dedicated City parking system.
- **City Management of Private Assets –** This allows private business or property owners to contract with the City to manage all or a portion of their parking assets. Agreement could include enforcement, maintenance, and management of spaces. If paid parking is implemented, revenues could be shared between private entities and the City.
- **Paid Parking –** provides the opportunity to manage demands and improves access to businesses by encouraging turnover.
- **Time Restrictions –** Time restrictions can be applied to identify how long users are allowed to park. This strategy is often implemented when parking needs to be managed but demands are not so high that paid parking is appropriate. The intent is to encourage turnover and improve access to businesses.

- **Permitted Parking –** Issuing permits provides dedicated parking for special users. The type of permit to be used depends on the uses in the management area. In some instances, a neighborhood permit might be appropriate. In other areas, permits are used to control other curb side users, such as loading, and provide them appropriate space and time without negatively impacting parking for visitors.
- **Parking Maximums –** In instances where the management area is characterized by higher-density, mixed uses, the use of parking maximums could be appropriate to encourage that type of development.
- **Coordinate Enforcement With The Parking Regulations –** Any parking regulations that are implemented need to be enforced consistently. Lack of enforcement can result in a lack of compliance with the parking regulations and ultimately the goals that are trying to be achieved through parking regulations will not be achievable.

NEIGHBORHOOD AREA POLICIES

Parking for residents in areas surrounding transit stations, commercial areas, or mixed-use development often needs to be protected to ensure residents have a place to park. Otherwise, it may be occupied by visitors, employees, or transit users. The strategies discussed below have been proven to work well in terms of balancing demands and providing residents with available parking spaces in neighborhood areas.

- **Neighborhood Parking Permit Programs –** These programs allow residents to apply for a permit to park in the designated area. Those without an appropriate permit are not allowed to park in that area. In some instances the permits are provided for free to those who apply for one, however, there are costs to the City for the provision of permits. These costs come in the form of added enforcement for the area to ensure people are not parking in the area without a proper permit, installed signage to indicate the parking regulations, and administrative costs associated with the processing of applications and the production and issuance of permits. Therefore, as the neighborhood parking permit program expands and grows, it is recommended to provide neighborhood parking permits for a fee to help offset these costs.
- **Special Time Restrictions For Neighborhood Areas –** Time restrictions, in general, are a useful and effective parking strategy. In neighborhood areas near commercial development, time restrictions can be applied to regulate when it is appropriate for visitors or non-resident parkers to park in that area. For instance, non-resident parkers may only be allowed to park in that area for a specific length of time only during a portion of the day. The intent is to balance the demands by allowing non-resident parkers use of the parking, typically during the daytime when that demand is highest, and then in the evenings the spaces are available for residents to use.
- **Coordinate Enforcement With The Parking Regulations –** Any parking regulations that are implemented need to be enforced consistently. Lack of enforcement can result in a lack of compliance with the parking regulations, which would ultimately diminish the ability of the City to achieve their goals (such as place making, better land utilization, improved quality of life) through parking regulations.
- **Neighborhood Parking Benefit Areas –** In some locations, applying paid parking (typically permits, but could include meters) in neighborhood areas allows for a balancing of spillover demands from adjacent businesses or transit areas, especially if that paid parking is regulated to specific off-peak use. In these benefit areas, the excess revenues from paid parking are returned to the neighborhood for use in transportation, pedestrian, streetscape, or aesthetic improvements.

Although these strategies protect parking spaces for residents, they do not guarantee that a space will be available directly in front of a person's place of residence. A person may have to park a little farther away at times than where they would ideally like.

Station Area Parking Management Template

The implementation of parking management strategies at a station area should include options to share parking, reduce vehicular demand, protect private parking assets, and promote efficient and effective parking. Implementation should also be supported by good data that tells how and why new management strategies are implemented. This data should be collected frequently as part of ongoing evaluation of parking needs within an area.

A study on the effects of parking policies on economy and mobility in Europe allowed researchers to find commonalities in how municipalities and transit oriented areas apply parking management strategies, including a typical sequencing and approach to parking management. While this process was defined for municipal parking practices in Europe, the flow and application is actually quite universal and helps define the process for implementing management strategies within the station area typologies as well. The sections after the graphic define the actual application and impacts of these steps in the Origin/Destination and Transit Town Center typologies.

Do Nothing

- Parking is available and abundant
- No concern from residents and business

User Restrictions

- After parking constraints occur, segments of the parking supply become regulated
- This could include private parking control, permits, or marked spaces/restrictions
- Spaces can be allocated for priority users (commuter, carpool, vanpool, etc) to ensure space is reserved for their use

Time Restrictions

- Promote efficient use of parking through turnover, encouraging long-term parkers to look for other spaces or arrival options
- Initial restrictions are managed through signage and enforcement

Residential Parking Protections

- The previous strategies could result in overflow parking into neighborhoods, which will likely result in frustrated residents
- Introducing a permit parking system that restricts parking in neighborhoods can minimize impacts. Most cases include a permit application and fee process.

Introduce Paid Parking

- After resources are exhausted and parking demand in area grows past an acceptable threshold (85-90% occupied consistently) paid parking should be introduced

Transportation Demand Management

- Beyond the provision of additional parking is the concept of providing alternative modes of access to the transit station and withing the TOD node
- Improvements to cycling, walking, and transit amenities are favored over parking improvements

Introduce Additional Parking

- If these measures still do not abate the growth of parking demand, more parking is typically provided
- This parking could be provided in non-convenient locations outside of the center of the district
- Shuttling and transit connections are often provided

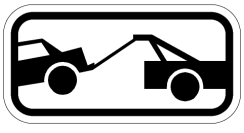
[2] http://www.europeanparking.eu/cms/Media/COST%20Action%20342%20final%20report[1].pdf

DO NOTHING

In the context of a new transit station area with limited public parking, this solution simply lets the existing parking system absorb new demand as available. For this scenario to work, the parking in the area needs to be plentiful, unregulated, and available for all users. Once the demand from the new generator is introduced, the new vehicles in the area will find available parking within a proximate distance of the station. While not ideal, this step in the spectrum requires no public or private investment in parking.

PARKING REGULATION AND CONTROL

The likelihood that the Do Nothing scenario produces a truly viable solution is not great. More than likely, businesses, patrons, and customers will feel some level of frustration as they begin to share their existing parking supply with the new demand. If this is the case, the next logical step is to create some level of parking regulation and control. Generally, the introduction of parking regulations and control can come from either the public or private sector (depending upon ownership of the spaces) and will either prohibit access to parking or more clearly delineate where parking is available. Most times, this can be accomplished through signage. However, prohibition of parking access may require additional efforts such as gate access control, permits, and/or enforcement.

Parking Control Option	Description	Examples
Signage	The simplest form of control is to implement signage that defines whether parking is allowed or not allowed. The signage could indicate preferential user or restricted access. The signage could also indicate the penalty for misparked vehicles.	
Clear delineation of spaces	Another method for improving parking control is to clearly delineate spaces that are public or private. This can be done through paint coloring, space numbering, or signage.	
Permit Control	Permit control allows for a more clear delineation of which vehicles have pre-approved access to a private parking facility. Permits can come in the form of hang tags, stickers, or even virtual permitting (typically through the license plate).	
Access control	Access control further delineates protected access by only allowing users with certain credentials to enter a facility. The credential access could be based on key cards, code control, or proximity readers.	
Enforcement	All of the above options will either be predicated on the honor system or some level of parking system enforcement. In the honor system, the management function is counting on patrons to follow regulations without oversight. With enforcement, you can further strengthen the regulation function by writing tickets or using towing/booting to remove vehicles. Because private businesses are often not allowed to issue citations, their options for enforcement may be limited, and may need to focus on vehicle removal.	 

Parking regulations may not be the most customer friendly approach to parking management, especially for small businesses who are trying to protect their parking assets. Gating or restricting access can often be seen as prohibitive for patron access and may not be a favorable solution amongst business owners. Additionally, enforcement, when done in a purely regulatory fashion, is often the primary instigation of a negative perception of parking. If towing or booting are added to the enforcement component, the result is often backlash from consumers or patrons. So these options need to be weighed carefully against the potential impacts to business in the area.

TIME RESTRICTIONS

If the application of parking regulations is not successful in alleviating parking problems, the application of time limited parking can help to redirect parkers to appropriate parking facilities based on their intended lengths of stay. In this scenario, longer term parkers (commuters) are redirected to parking spaces that have less priority to serve business needs, especially short trip retail and commercial parking needs. This type of regulation, when used in the setting of a transit station, helps to keep commuter parkers from parking in high demand spaces all day long. If on-street regulated parking spaces were established within a station areas, this could include designating on-street parking spaces (if there were any) as 2-3 hour limited, which would keep those spaces available for area users who need to access businesses in a short term manner. This often needs to be coupled with effective enforcement to make sure that the parking time regulations are followed.

NEIGHBORHOOD PARKING PROTECTIONS

The introduction of protected/prohibited parking and/or time restrictions can often times have the unintended consequence of pushing long-term parkers into adjacent residential areas. When residential streets are unregulated and within a reasonable walking distance of the transit station, they can be very appealing for commuters looking for free and available parking. In these situations, it often becomes necessary to implement some type of protection for the residents who are being infringed upon. This is typically in the form of a neighborhood permit parking program, where residents can obtain a certain number of permits to park on residential streets, while restricting unpermitted parkers from leaving a vehicle. This effort will need a certain level of enforcement to ensure that regulations and restrictions are followed.

While the implementation of neighborhood permit parking programs varies throughout the country, the most successful programs include the following components:

- Effective citizen participation to understand the issue and potential solutions, including active work by the neighborhood to "prove" the problem, including collecting a certain number of signatures within the neighborhood and documenting the problem. While this may seem laborious for residents, this truly helps the neighborhood to understand the magnitude of the problem, rather than reacting to a one time issue. The City of Seattle has an effective neighborhood outreach program, in which the City does joint data collection and analysis efforts with the community to truly diagnose the problem. The results are often solutions that are more effective as well as receive a higher level of buy-in from the neighborhood.
- Permits should have an associated fee to cover the cost of signage, enforcement, and administrative costs. Only a certain number of permits should be issued to each house, with access to a limited number of guest passes throughout the year. Permits should be reviewed annually, including assessing data that supports continued management of parking in the residential area.

While neighborhood permit parking programs are the traditional approach to managing parking within a neighborhood faced with spillover issues, a slightly less traditional approach is to embrace the additional demand and support the need for additional parking in the area. This approach takes the concept of the parking benefit district, which has seen recent success in commercial and entertainment areas, and translates it to the residential area. The basic tenets are that commuters would be allowed to park in the neighborhood, but at a cost. The revenues from the parking charges, after covering operating and administrative costs, would then be returned to the neighborhood association for use in neighborhood improvement.

Three options would be available to manage and provide parking in the area, including:

- Sell commuter permits which would allow parking access in the neighborhood between certain hours (e.g. 7am to 6pm). The number of permits sold would be "calibrated" to available stalls during allowed hours to ensure that residents (primary users) are not denied parking at any time during the day.
- Sell priority commuter permits which would only allow carpooling vehicles to utilize the parking spaces between the designated hours
- Install parking pay stations (or pay-by-phone) that would allow commuters and other transient parkers to pay for parking on a per transaction basis

Any of these options would need to be coupled with neighborhood permits, which would allow the residents access to the neighborhood streets without a transaction cost. However, in a paid parking environment, the residents would not likely need to pay for the neighborhood permit annually and stall occupancy would be balanced through number of permits allowed and/or pricing.

INTRODUCE PAID PARKING

As parking demand in the area continues to grow and intensify challenges between public and private parking demands, it will likely be necessary to implement paid parking within the area. The implementation of paid parking is often viewed as one of the most challenging policy changes within a community, because patrons, residents, and business owners have an engrained feeling that free parking is essential to the success of a community or area. But often times, unrestricted and free parking can be a detriment because there are no impactful parking management components to control parking behaviors and allocate parkers to appropriate facilities. While often seen as a revenue generating activity by the public, the true intent of paid parking is to alleviate congestion on the roads, make parking spaces available to intended/priority users, and encourage use of alternate modes of transportation.

There are a number of ways that paid parking could be implemented. The table below lists common implementation opportunities and describes their use.

Paid Parking Opportunity	Description
On-Street Parking	Within the area there are opportunities to convert existing streets with ample cross sections to two-way traffic with parallel parking on either side. These locations could be established as transient parking spaces, with hourly meters, or as commuter spaces with paid permits. The use of license plate based payment could also be used to establish short term and long term parking rates, as well as preferential parking as described in the next two entries. On-street parking can be managed through meters, pay-by-phone, or pre-paid transactions.
Progressive Pricing	Using progressive pricing to increase the hourly transaction cost the longer the transaction occurs can help to dissuade long term commuters from taking valuable spaces within the system that are needed to support business and patrons. The concept sets a standard rate for the first few hours of the transaction, and then the rate steadily goes up for each additional hour that is used.
Permits	Selling parking permits to commuters could help to minimize the overall demand for transit park and ride by monetizing the provided supply. This monetization can dissuade parkers from making vehicle trips, especially when combined with commuter or carpool incentives that make the cost of the space lower.
Private business with validation	The option to implement paid parking on private property is at the sole discretion of the property or business owner. However, the introduction of a paid parking program with validation could provide multiple benefits, including: » Provision of dedicated and protected parking for employees and patrons » Validation system that monetizes parking costs for patrons, while still providing an option to reduce or subsidize the cost » Opportunity to share excess parking supply, lessening the need to build additional stand-alone parking which might negatively impact property values » Revenue stream to offset property management and maintenance costs » Revenue stream to support eco-passes or other mobility management enhancements for employees and/or patrons

Because implementing paid parking is typically unpopular within the community, implementing agencies should strive to work extensively with the community when deciding to implement parking rates. This not only gives the public a chance to be heard, but provides an opportunity to educate the public on the complexities of parking and the need for paid parking.

It is important to communicate the message that paid parking is a management tool to improve parking operations. When parking is free it may impact the community in ways that aren't apparent, such as higher taxes, higher retail prices, higher lease prices for business, lower land use densities and reduced wages. In addition, underpriced parking allows for inefficient use of parking facilities and leads to excessive demand. When parking is free, vehicles can occupy the most convenient spaces for a long period of time. This reduces motorist convenience and increases congestion. Surveys indicate that as much as 74% of congestion is caused by vehicles circling the blocks looking for available parking. Implementing a successful paid parking program will improve parking management and could alleviate driver frustrations, congestion, and associated pollution. The table below llustrates the relationship between parking rates and a reduction of vehicle trips.

RELATIONSHIP BETWEEN PARKING RATES AND REDUCTIONS TO COMMUTING TRIPS[3]

Worksite Setting	$1	$2	$3	$4
Low Density Suburb	6.5%	15.1%	25.3%	36.1%
Activity Center	12.3%	25.1%	37.0%	46.8%
Regional CBD/Corridor	17.5%	31.8%	42.6%	50.0%

When considering paid parking in your community, the following best management practices help with successful implementation:

- Charge motorists for parking directly, because it helps to establish the market value for the commodity (parking). If parking must be subsidized, offer comparable benefits for use of other travel modes (e.g., cash out payments).
- Charger higher prices and use shorter time periods for spaces in high demand locations. High prices and shorter durations increase turnover. Less desirable spaces on the fringe are appropriate for longer term parking at lower rates.
- Use a progressive rate structure to encourage short term parking in high demand areas. For instance, charge $1.00 for the first hour and the longer a user stays, the price increases accordingly.
- Allow for flexible payment methods by allowing users to pay for exactly the amount of time they wish to stay (charge by the minute in short term areas and by the hour in long term areas). Provide multiple payment options to create an easier payment environment.
- Set parking prices to equal or exceed the cost of operating an automobile. The intent is to encourage use of alternate modes of transportation.
- Use legislation and incentives to encourage businesses to opt for cash out programs (programs that monetize parking for office or residential based parking spaces) so that they only pay for the spaces they need.
- In the event that parking must be subsidized, avoid offering free parking to everybody. Instead, consider validation programs where businesses can validate tickets for customers.

[3] *Somewhere on VTPI...need reference*

- Tax parking and require that this cost be passed to users. Net revenue generated from the tax can also be passed back to the districts for use in supporting better parking management, TDM and/or new supply
- Designate the neighborhood areas as Parking Benefit Districts. Users must pay to park on-street in residential areas (residents are exempt with a permit). Parking revenues from those meters are then used for neighborhood enhancements or reducing property taxes. A parking benefits district could also apply to a business district, where the businesses work collaboratively to solve parking issues and receive net revenue from parking to support district enhancements.

TRANSPORTATION DEMAND MANAGEMENT

The final category of parking management strategies is perhaps the broadest, but also the one most aligned with the future vision of transit-oriented development in the Aurora area. This category, Transportation Demand Management, intends to begin to change the arrival patterns within the district, as well as promote a more active transportation network beyond the personal automobile. This type of solution promotes pedestrians, cyclists, and transit riders as the primary users of the area and de-emphasizes single occupancy vehicles through policy, management practices and price.

Below are a few examples of these types of strategies, and how they are implemented[4].

- **Improved Bicycle and Pedestrian Amenities –** in order to stimulate a different type of arrival pattern, and in turn lessen the parking demand in an area, the community could implement improved cycling and pedestrian amenities. This begins in the paths and routing of these amenities, including improved sidewalks with streetscape, safety features, and active street life, as well as bicycle routes that connect neighborhoods and commercial areas to the transit station. Beyond the routing amenities, providing amenities at both the transit destination and the final destination are equally as important. For biking, providing safe and secure bicycle storage near the station will help to promote a more active cycling community. And within the workplace, it is important to provide showers and storage amenities so that employees can make the transition from commute to work. For pedestrians, providing shelter and street level amenities at the station will allow for cover during inclement weather and a place to rest between walking trip and transit trip.
- **First and Last Mile Amenities –** often times the transit trip is not chosen because of the lack of connectivity between station and destination or origination. The provision of amenities to serve the first and last mile are important to help trip chain between the station and original or final destination. The pedestrian and cycling amenities mentioned in the previous bullet help to improve that connection. Additional amenities such as car share, bike share, or ride share can also help to provide a sense of confidence in the ability to connect between transit and destination.
- **Improved Connectivity with Transit –** while the transit station provides the primary connection between the area and other locations along the rail line, additional feeder connections can help bring commuters from the surrounding areas without the need for personal vehicle or parking space. As the area develops and the demand for both transit and development are realized, the City and RTD could evaluate the need for additional shuttle or transit services into the area.
- **Financial Incentives –** beyond infrastructure improvements aimed at shifting modes, demand could be shifted by implementing some type of financial component that incentivizes non-vehicular travel. In particular, concepts include unbundling parking costs from residential leasing or sales rates, cashing out the cost of parking that is typically subsidized by the employer, or providing some type of subsidized transit pass in concert with implementing paid parking. These programs can work to monetize the cost

[4] *http://www.vtpi.org/tdm/tdm28.htm#_Toc128220483*

of parking and promote the use of alternative transportation means to change parking dynamic.

- **Commute Trip Reduction Program –** Commute Trip Reduction Programs are generally implemented by employers to incentivize alternative transportation methods and reduced commute trips. Services and educational tools include finding/matching into a carpool, transit options, commute cost calculation, and program implementation strategies, among many others.
- **Carpool Programs –** Employers may encourage carpooling between employees through reduced cost or free parking (if priced), preferential parking spaces, reward programs, or rideshare matching which aid in matching carpoolers with similar schedules and locations. Carpool programs can be mandated by the City as a condition for new development and be supported through parking regulations by providing marked priority parking or free parking for carpools. Additionally, the City can support carpooling as a method to reduce parking demands by establishing signed priority parking and discounted or free parking for carpools. To manage carpool parking, permit programs should be implemented through the City or by employers which may be done in conjunction as part of a Trip Reduction Program. Carpools must be registered in order to receive benefits from the program which will require a parking management agency to oversee.
- **Transportation Management Associations –** Transportation Management Associations, or TMA's, are private, non-profit, member controlled organizations that help to manage transportation operations in an area. TMA's can actively manage the parking and transportation demand management needs in an area, and work to implement strategies that encourage more efficient use of resources. Typically, the TMA is organized by stakeholders in the area and are working with the interest of the stakeholder group to actively protect parking assets and expand programs, services and strategies to transition higher percentages of auto trips into alternative modes (transit, bike, walk and rideshare). TMA's can also provide parking system brokerage services, which allows for sharing, trading, leasing, renting or selling parking spaces as well as serve as a "one stop shop" delivery resource for transit passes, bike, walk and carpool programs. This approach to shared parking management can help to optimize parking usage in an area, without the need to build additional parking spaces.

INTRODUCE ADDITIONAL PARKING

In the instance that regulations, policies, time limits, and paid parking do not alleviate parking demand issues, it may be necessary to build or identify additional parking supply to support the growing demands of an area. The construction of parking spaces is not an inexpensive endeavor, with surface lot spaces averaging $3,000 to $5,000 per space, above ground garages ranging from $10,000 to $20,000 a space, and below ground garages ranging from $25,000 to $40,000 per space. So the decision to add parking should be made carefully, with the understanding that there must be both demand and appetite for a structure or lot.

In some cases, identifying existing underutilized spaces that can be opened for sharing or leasing is the best option, because it provides a short term solution with the ability to change if the parking demand in an area changes. For example, if the City were to lease 100 available spaces now to alleviate some commuter demand, those spaces could be utilized without the need to invest in long term parking construction and management. In many cases, maximizing the efficient use of existing parking is the best solution for all parties involved, because it allows for new demands to be met without burdening an area with additional parking infrastructure that might prove costly to development or land values over time.

What if, over time, the demand for parking changes in the area as the density of a transit-oriented

development is realized and walking and biking trips begin to replace single occupancy vehicle trips. After the leasing period is up, the City could relinquish those spaces back into the general supply for use by other patrons or perhaps for redevelopment to a higher intensity use.

Florida Station Area Parking Template

The Florida station is a location that will see a mixture of arriving and departing trips, as well as a potential change in arrival patterns for existing employees and patrons of the areas businesses. While the ridership projections for the Florida station are the lowest along the entire I-225 line, there are mitigating factors that could influence a need to implement specific and targeted parking management strategies within the area. First, the LRT H line is programmed to end at the Florida Station, rather than extending to the Peoria-Smith station, which could cause some commuters to choose the Florida station for their starting point on H line commuter trips. Second, the RTD Fastracks funding does not include parking spaces at the Florida station.

FLORIDA STATION AREA TYPOLOGY

There are several factors that will influence the parking management strategies at a particular station. Presence of public parking to support transit is one. Presence of walkable and/or bikeable amenities will impact access patterns and parking demand. But the primary driver of the types of parking management strategies available is the type of area surrounding the station and the expectations of that area to accommodate transit demands as well as grow with the shifting behavior and population patterns.

The 2009 City of Aurora Strategic Parking Plan and Program Study outlined three specific station area typologies that were envisioned along the I-225 light rail line. These typologies included[5]:

- **Origin:** Stations that serve primarily as a transit trip originator feeding/contributing trips to regional employment, retail and entertainment centers. Examples include end-of-line/park-and-ride stations with lower-density suburban residential and mixed-use developments with residential units. They will primarily serve transit trips that originate in the station area as well as the adjacent area, and therefore need to provide significant commuter parking.
- **Destination:** Stations that serve primarily as destinations for regional transit trips. Examples include CBD and major regional employment, retail and entertainment centers, and therefore should provide no or minimum commuter parking.
- **Origin/Destination Mix:** Stations that serve both as origin and destination for transit trips. Examples include typical suburban stations with a mix of housing, employment, retail and cultural activities. These locations will serve both as transit trip originators and destinations and need to provide adequate amounts of commuter parking while at the same time accommodate retail, office and residential developments in the station areas.

From these descriptions, the Florida station was most likely predicted as the third type, which was the hybrid of origin and destination. This is consistent with the city's classification of of Florida as a community center station (see Typology of Aurora's TOD's, Fig. IV.K-2 2009 Aurora Comprehensive Plan). From that study, the primary user predicted at the Florida station was the customer or employee whose destination is already located within the Florida planning area and who will likely begin to arrive on transit trips, rather than the traditional single occupancy vehicle trip. The secondary user would be commuters who would originate

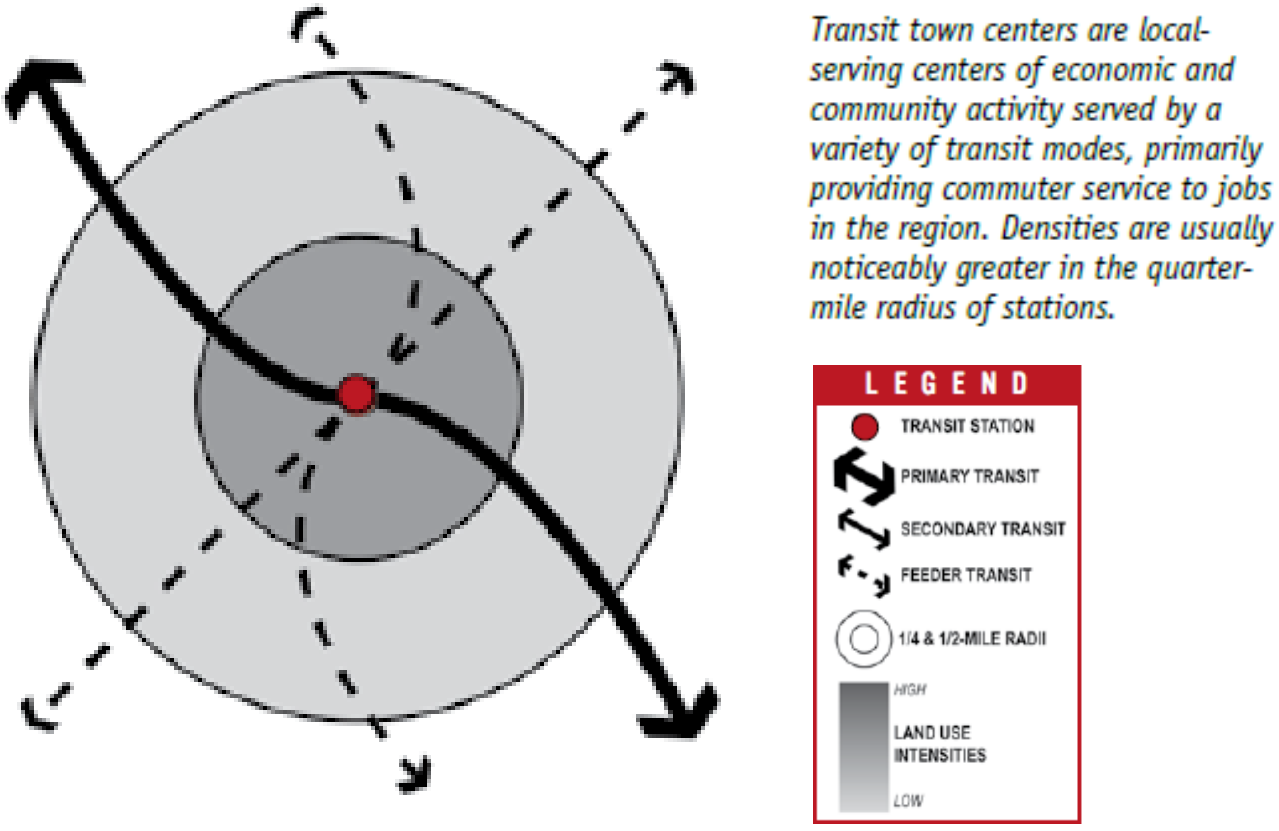
[5] *https://www.auroragov.org/cs/groups/public/documents/digitalmedia/005442.pdf*

in the Florida planning area and move from that station to other destinations along the line. Some of these commuters could originate from the neighborhoods adjacent to the station area, but many will arrive as commuter drivers to access the station.

The 2009 parking study also designated the station area as a Transit Town Center, which is expected to provide a centralized mix of retail, residential, employment, and entertainment activities surrounding the Florida station. The definition of that typology, as described in the previous study[6]:

> *Development in a Transit Town Center is typically of moderate density in the immediate station area (one-quarter mile radius from the station), and significantly lower in the station's periphery, generally comprised of single family housing. The concentration of varied uses encourages use of the station area as a downtown-like setting, contributing to the vibrancy and attractiveness of the station area as a public place. Additionally, the variety of uses increases the likelihood that the station area will remain populated throughout the day, generating economic activity while also promoting public safety and cultural vitality.*

The Federal Transit Administration and the Center for Transit Oriented Development further distinguish Transit Town Centers as locations that are more "local serving" centers of economic and community activity. There are fewer secondary transit service lines in the area, and those lines serve to feed the main transit artery. Residential densities are lower, but there is still a healthy mixture of multi-family and single family residential available.



[6] *http://ctod.org/pdfs/tod202stations.pdf*

IMPLEMENTING STRATEGIES FROM THE SPECTRUM

The parking management spectrum presented in the previous section provides the typical progression from introduction of a parking problem to its solution. When implementing solutions, it is not often necessary to work through the entire spectrum, as initial management strategies could prove fruitful at solving the areas parking issues. It is not also necessary to follow the spectrum in chronological order, because the most obvious solution might be towards the back end of the spectrum.

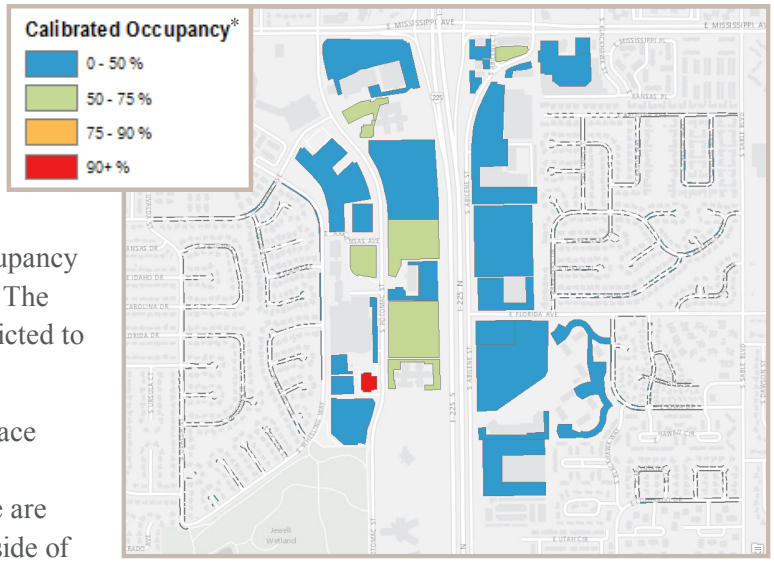
Using the Park+ modeling application that is being developed for the I-225 Line and its corresponding stations, the Kimley-Horn team modeled the opening day parking demands for the Florida station and the application of parking management strategies based on the spectrum defined in the previous section. The following iterations of the modeling application include the examination of existing parking demands, introduction of commuter parking demands at the transit station, application of parking restrictions (both private commercial and residential), introduction of new parking supply, and impacts of potential Transportation Demand Management (TDM) strategies.

The Aurora I-225 Line Park+ Model

As part of the development of the Aurora Parking and Mobility Enterprise Business Plan, Kimley-Horn also developed a Park+ modeling application for the City, which should be used for ongoing evaluation and management of parking demands within the community, especially around transit stations. The Park+ Parking Scenario Planning Model is an ArcGIS integrated module that allows the user to evaluate existing parking, identify new development and parking facilities, multimodal parameters, and parking management scenarios to analyze the total impacts of parking demand for municipal, campus, or development settings. The Park+ Model allows the user to manipulate various inputs, create alternative scenarios, and adjust analysis area's to create specific and localized evaluation sets to help predict the effects and impacts of land use-parking demand relationships. Scenarios can be evaluated from the aggregate level to the finite level.

The Aurora Park+ model was calibrated using parking occupancy data from the various station areas collected in February 2015. That data was paired with existing land use data to form the calibrated framework with which the following scenarios are built. That calibrated framework includes parking generation ratios for various land use categories, based on the actual demand observed at each of those sites. Additionally, transit parking demand data was taken by doing occupancy observations at the Nine Mile and Dayton stations. Those two occupancy observations were compared to RTD ridership data to determine the parking space demands per rider. Finally, parking occupancy data was collected at the Englewood station to represent build-out conditions at the various station areas. That site was chosen because of the representative TOD characteristics that are expected to be present as the station area sites redevelop. Those parking demand characteristics were used in the 2035 build-out projections in conjunction with development conditions provided by the City of Aurora planning department.

Existing Conditions



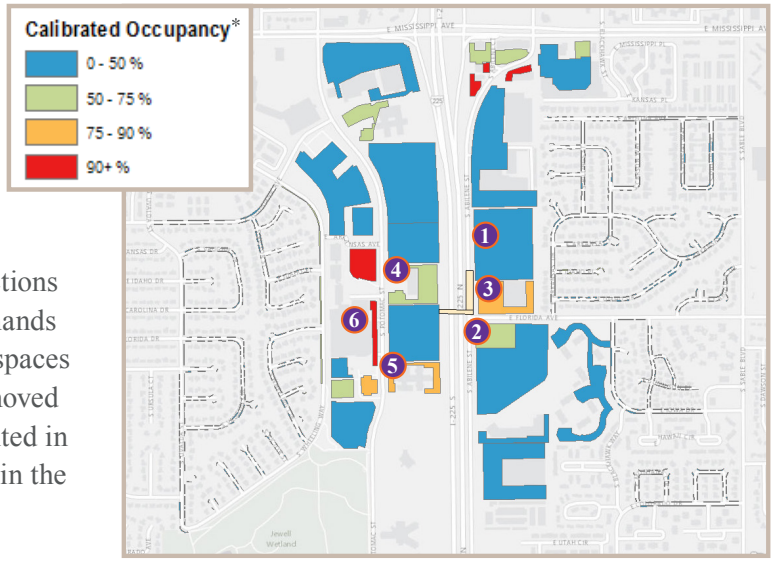
The graphic to the right depicts the existing conditions as projected in the Florida station area. These conditions are for the peak hour of demand, which occurs at approximately 2pm. These existing demands are based on parking occupancy data collected in the field in February 2015. The parking facilities in the graphic are all restricted to the users of the facilities they serve.

The graphic indicates that there is ample space in most of the parking facilities serving the businesses in the Florida station area. There are some higher demand locations on the west side of I-225, attributed to the various medical office and hospital users. Overall, there is still a healthy surplus of spaces in that area.

Overall Parking Statistics

Demand: 2,525 spaces
Supply: 7,261 spaces
Average Parking Occupancy within 1200' of Florida Station: 38% (1,700 spaces available)

Opening Day w/o Restrictions



The graphic to the right depicts the conditions on opening day. In this particular scenario, all restrictions were removed from parking facilities to simulate the effects of commuter parkers using any available space to satisfy demand for parking. This removal of restrictions also had the effect of moving projected demands from existing users to the most convenient spaces (based on walking distance). This change moved some existing demands around, which resulted in slight variations in occupancy color coding in the graphic.

**Calibrated occupancy indicates the modeled occupancy from the Park+ model that is based on actual parking observations and land use characteristics.*

In terms of commuter demands, the parking facilities that were impacted initially include (table below):

Parking Facility	Existing Occupancy	Opening Day Occupancy
EcoTech*	14%	29%
Holiday Inn	16%	72%
24 Hour Fitness*	24%	75%
1444 S Potomac	45%	67%
Gateway Terrace	57%	84%
Medical Center of Aurora ER Parking	18%	96%
Arkansas Drive (Residential)	0%	25%
East Idaho Plane (Residential)	0%	59%

While the impacts of the commuter demand are varied, the general result is that commuter parkers will look for whatever parking is available to them if no restrictions are in place. This includes lots on the west side of I-225, which would use the pedestrian bridge for access to the station. The next exercise will be to evaluate parking restrictions on these highly impacted sites.

Overall Parking Statistics

Demand: 2,762 spaces
Supply: 7,261 spaces
Florida Station commuter demands (@ 2pm): 257 spaces

Initial Parking Restrictions

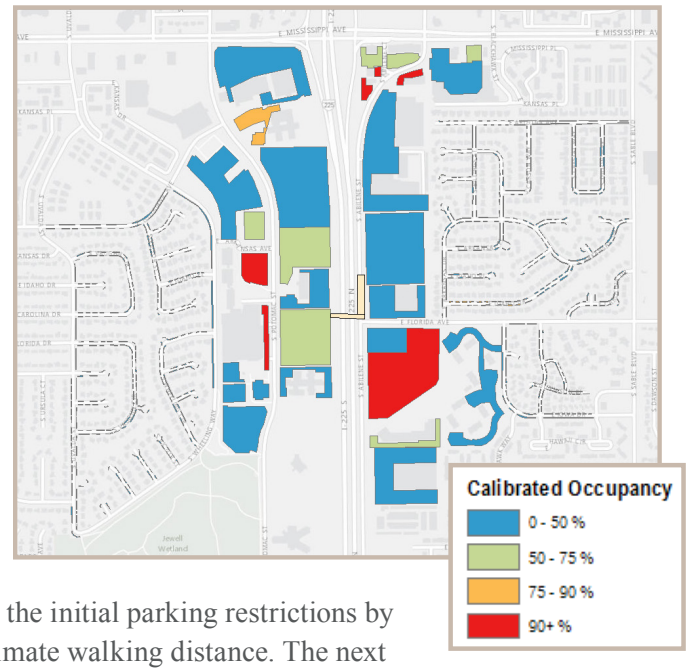
After evaluating the opening day scenario with no restrictions, it was apparent that commuter parking demand would look for any available space within a proximate walking distance of the station. The next scenario evaluated the application of parking restrictions at the five most heavily impacted businesses identified in the previous scenario. At this time, there were no neighborhood parking restrictions applied to Arkansas Drive. The restricted facilities include (as shown on the map on the previous page):

1. EcoTech
2. Holiday Inn
3. 24 Hour Fitness
4. 1444 S Potomac
5. Gateway Terrace
6. Medical Center of Aurora

** Peak conditions for 24 Hour Fitness and EcoTech occur in the evening hours, when commuter demands for the I-225/Aurora Line will be lower.*

Based on the application of these restrictions, the commuter demands were redistributed throughout the system, as shown in the map to the right. The businesses that were most heavily impacted are shown in the table below:

Parking Facility	Existing Occupancy	Opening Day Occupancy
1400 SO Potomac	51%	59%
Business Center South of Holiday Inn	43%	96%
Potomac Medical Plaza	48%	52%



The results indicate that the commuters responded to the initial parking restrictions by then finding the next available parking within a proximate walking distance. The next scenario will evaluate the further restriction of parking in those three impacted businesses.

Additional Parking Restrictions

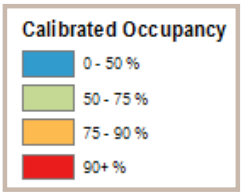
After evaluating the opening day scenario with the first wave of restrictions, it was apparent that commuter parking demand would shift parking patterns to the next available parking locations within proximate walking distance of the station. The next scenario evaluated the application of additional parking restrictions at the three impacted businesses identified in the previous scenario. At this time, there were still no neighborhood parking restrictions applied to adjacent neighborhoods. The restricted facilities include:

- 1400 SO Potomac
- Business Center South of Holiday Inn
- Potomac Medical Plaza

Based on the application of these restrictions, the commuter demands were redistributed throughout the system, as shown in the map on the following page. The locations that were most heavily impacted are shown in the table below:

Parking Facility	Existing Occupancy	Opening Day Occupancy
Business Center	43%	96%
I-255 Business Center	42%	63%
Florida Ave	0%	55%
Louisiana Place	0%	62%
S Wheeling Way	0%	68%
Idaho Drive	0%	96%

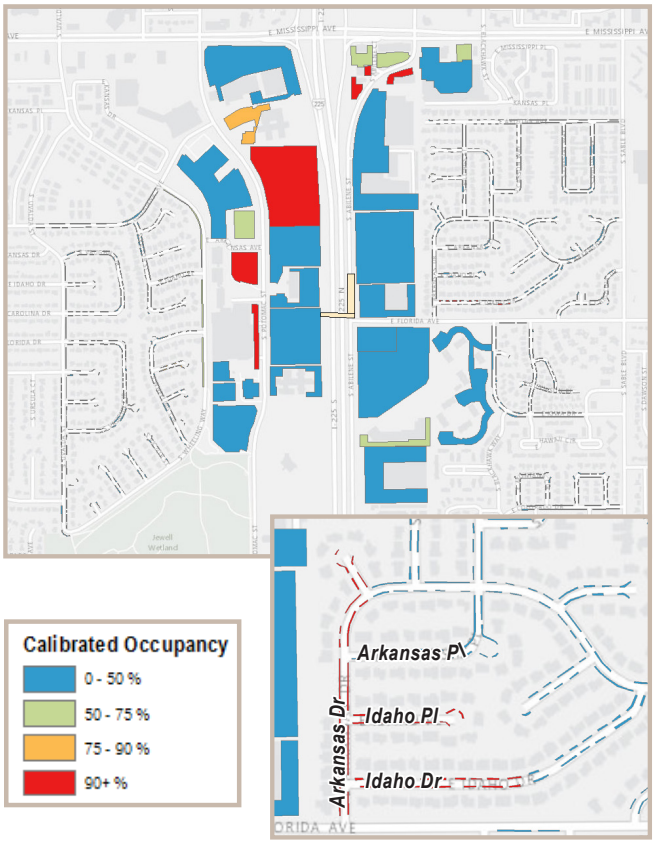
The results indicate that the restrictions have exhausted most of the proximate parking options and the commuter parkers are beginning to look into residential areas for available parking, including the Lexington Park multi-family complex and the neighborhood directly east of EcoTech and 24 Hour Fitness. The next scenario will look at the restriction of Lexington Park and the overall impacts to the single family neighborhood.



Final Private Parking Restrictions

This scenario looks at the final private parking restriction, to the Lexington Park multi-family housing complex. After that restriction, the only remaining place for commuters to park will be in the neighborhood east of EcoTech and 24 Hour Fitness.

Based on the application of the final restriction, the commuter demands were redistributed into the neighborhood, as shown in the maps to the right. The streets that were most heavily impacted are shown in the table below:

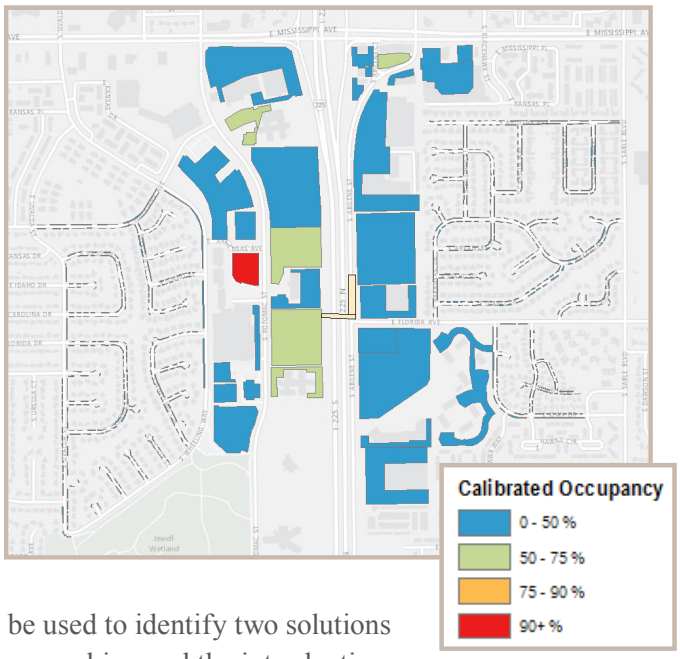


Parking Facility	Existing Occupancy	Opening Day Occupancy
Arkansas Drive	0%	96%
Idaho Place	0%	96%
Idaho Drive	0%	96%

The results indicate that after the implementation of parking restrictions for the private businesses within 1200 feet of the transit platform, the commuter demands would then be satisfied by the residential street network in the neighborhood east of EcoTech and 24 Hour Fitness. The next scenario will evaluate the impacts of a Neighborhood Permit Parking program for the residents in that area.

Neighborhood Permit Parking Program

This scenario introduced neighborhood parking program restrictions for the area east of EcoTech and 24 Hour Fitness. Those permits restricted commuters from utilizing the neighborhood street network. In combination with the previously implemented private parking restrictions, the commuter demands now have no place to locate, which results in a latent demand for the transit station. The latent demand represents the demand for parking that will now need to be satisfied elsewhere, whether at another station, further away from the station, or through the use of another mode of transportation to access the station.

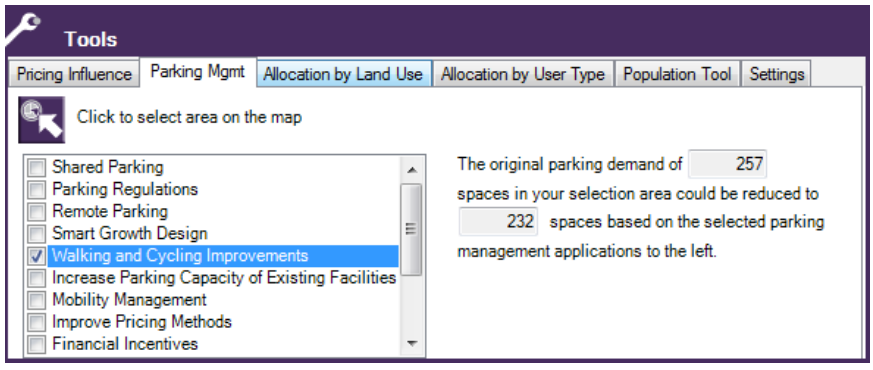


The total latent demand for the station is 237 spaces. In the following two scenarios, the model will be used to identify two solutions for mitigating that latent demand, including building new parking and the introduction of TDM measures to reduce overall demand at the station.

Transportation Demand Management (TDM)

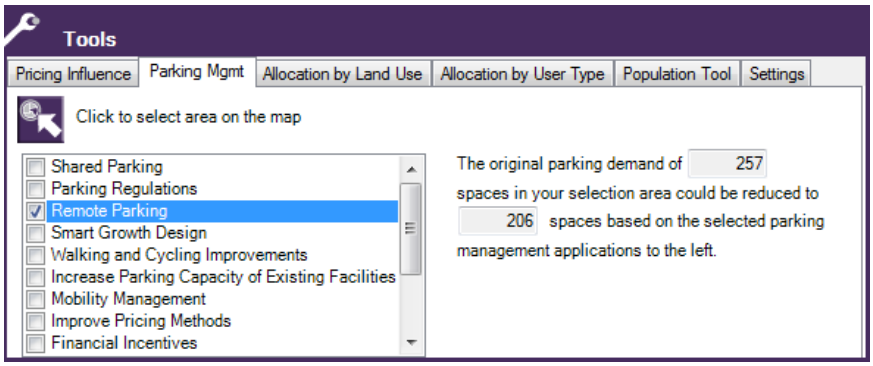
The next scenario evaluated the introduction of TDM measures at or around the station, including improving bicycle and pedestrian amenities, mobility management strategies, introducing bicycle parking facilities, or establishing remote parking and shuttling facilities. The Park+ model uses the demand generated by the observed land uses (in this case the Florida transit station) and applies TDM reduction factors that are provided in national research standards. In this case, TDM reduction standards from the Victoria Transport Policy Institute were used to evaluate demand reduction potential.

Improving Bicycle and Pedestrian Amenities



This TDM strategy typically aims to improve walking and cycling conditions along the routes to the transit station, including improved sidewalks, bike lanes, and pedestrian and cyclist amenities. This could also include adding bike shelters or storage as a means of promoting cycling as a commute option to the station. Based on the demand at the station, this type of improvement could result in a reduction in demand of approximately 25 trips.

Remote Parking and Shuttling

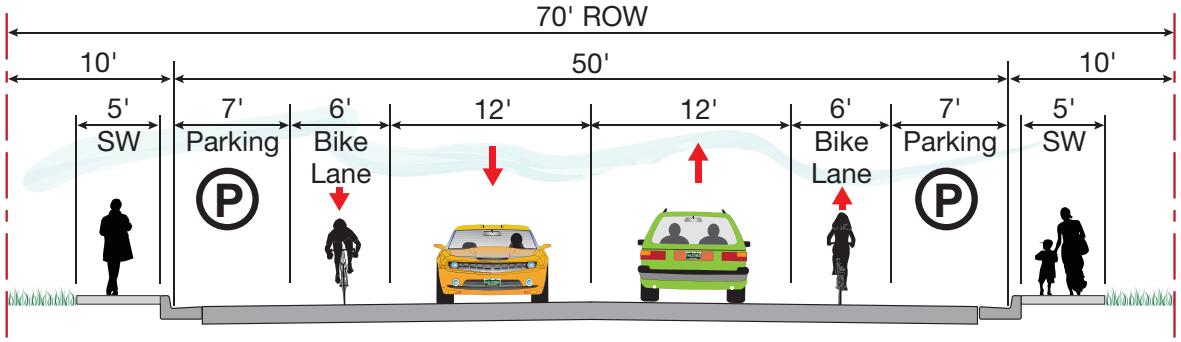


This TDM strategy aims to move some of the commuter demand further from the station into dedicated park and ride lots that would use shuttling to connect riders between the stations and the remote parking spaces. Based on the demand at the station, this type of improvement could result in a reduction in demand of approximately 25 spaces.

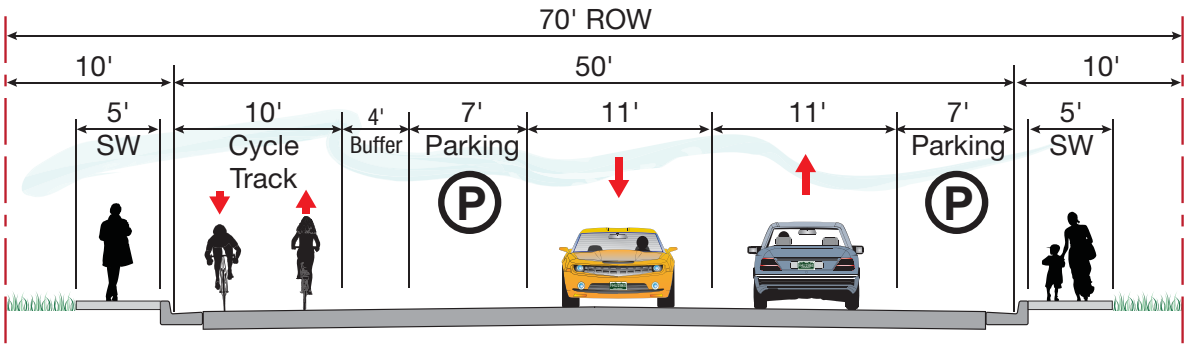
Introducing New Parking

The final scenario looks at the introduction of new parking supply within a proximate walking distance of the new station. There are no suitable locations to introduce a new parking lot within a reasonable walking distance, without impacting private business assets. However, the street cross section on Florida Avenue could provide some on-street parking capacity that could be used for commuter parking needs at the station. Florida Avenue has a right-of-way width of 70 feet and a pavement width of 50 feet. Within this width, on-street parking could be added to help support commuter parking demands. Based on City staff review of ability to include on-street parking along Florida Avenue, approximately 100 on-street parking spaces could be added to support commuter demands. This number may fluctuate based on conflicts (driveways, hydrants, etc) as well as final design plans for committed bicycle improvements along Florida Avenue.

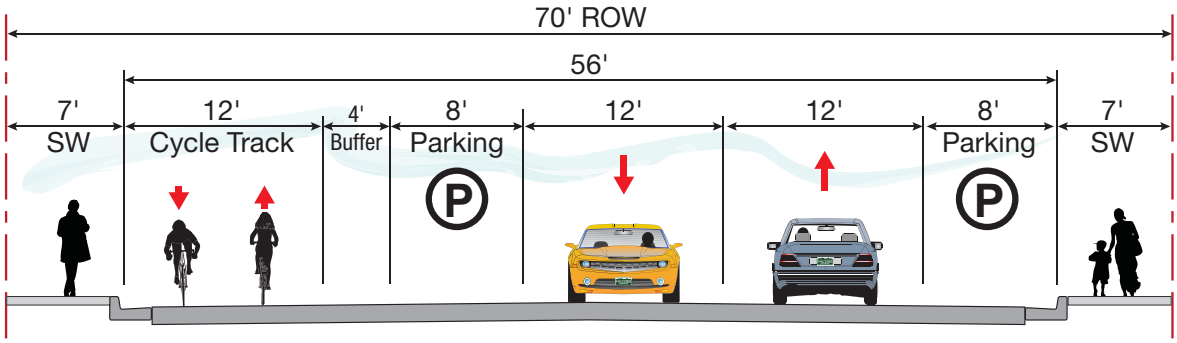
Currently, the cross section along Florida Avenue is being evaluated for the implementation of bicycle lane improvements. These improvements are funded by a DRCOG grant the City received in 2015. There are several options being considered, several of which are shown on the following page. These cross sections all have the ability to provide on-street parking on both sides of the street, while also accomodating cyclist and vehicular movements.



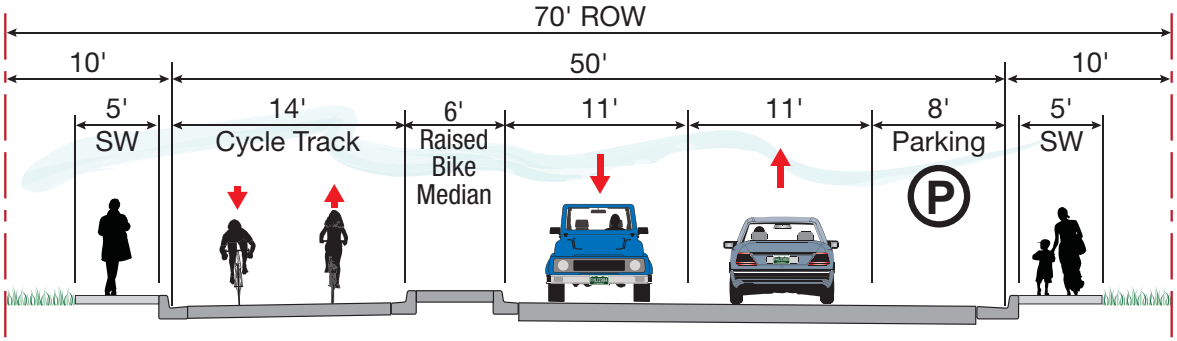
OPTION A. Bike Lane with Parking



OPTION C1. Two-Way Cycle Track with Parking



OPTION C2. Two-Way Cycle Track with Parking (widened section)



OPTION D. Two-Way Cycle Track with Parking on South Side

The addition of on-street parking spaces between the 24 Hour fitness entrance off of Florida Avenue and Carolina Drive could be used to offset the commuter demands in the area. While this is not enough to satisfy all of the commuter demands (~257 spaces in the peak hour), it could certainly help mitigate issues. If combined with some of the TDM strategies in the previous section, a majority of the demand could be satisfied through demand reductions and the newly created on-street parking.

Cross sections prepared by Felsburg Holt & Ullevig

SPECIFIC FLORIDA STATION RECOMMENDATIONS

The solutions defined in the previous section used the parking management spectrum to identify potential challenges and opportunities for parking management within the Florida station area. In general, the following recommendations build off of that analysis, while also incorporating a higher level of parking management that will need to be a collaborative effort between the businesses in the area and the City of Aurora.

1. Form a business improvement district for the businesses in the area. The BID will help ensure that parking management practices are implemented consistently throughout the area, while actively promoting business interests, including safety, security, and access.
    a. The businesses will have two options for managing their own parking:
        i. Limiting access to only their employees and patrons. At the lowest price point, this will need to be controlled through signage and/or permits and some level of enforcement, likely private towing. At a higher price point, this could include access gates and restricted access (proximity cards or codes).
        ii. Providing designated shared spaces for commuters near the station, using joint management with the City as part of the parking and mobility enterprise system. The City and businesses could designate spaces for sharing and a payment system. The payment system would likely be a combination of numbered spaces and either a pay on foot station or a mobile payment platform (or both). The revenues under a system like this would be shared between the City and the business.
            01. The best likely location for this type of arrangement would be in the EcoTech and 24 Hour Fitness parking lots, whose peak demand conditions are different enough from the commuter demands to create a successful shared parking arrangement. Both EcoTech and 24 Hour Fitness see their highest patron demands during evening peaks, after students and patrons normal workdays. The heaviest commuter demands will occur during morning and mid-day periods, providing an opportune environment for shared parking.
            02. In return for the shared spaces, the City could provide EcoPasses from RTD to the employees and students at EcoTech and the employees of 24 Hour Fitness. The applicability of providing EcoPasses will depend on RTD eligibility and/or the ability for the City to provide a revenue share based on net revenues collected from parking management at this site.
2. Implement bicycle parking near the station to help support alternative arrival options for both commuters and employees in the area.
3. Implement on-street parking along Florida Avenue. This parking can be managed through several options, including:
    a. Paid transient parking with a combination of parking pay stations and pay by phone. The ideal combination would be a handful of parking pay stations (likely one or two kiosks) for all spaces, spaced appropriately to provide adequate coverage within a reasonable walking distance (see the asset light concept in the Technology Master Plan). When used in conjunction with a pay-by-phone platform, the pay by phone option can be promoted over the pay on foot option.
        i. Payment could be hourly or daily. In an hourly setting, the time limits should be long enough to support commuter parking needs. However, progressive parking rates could be used to

promote some level of turnover while ensuring transit riders who are willing to pay can park without fear of a citation.

b. Permitted commuter parking, with incentives for carpool vehicles. Permits could be priced to give a discount for registered carpool vehicles.

c. In either case, revenues from parking should be reinvested back into the district after covering operating costs. The most likely reinvestment could be transit passes or incentives for area employers to help lessen the vehicular demand from their employees.

4. Implement a neighborhood permit parking program for the neighborhoods that are adjacent to Florida Avenue.
   a. Permits should be issued at the request of the residents, with sufficient evidence supporting the need for the permit.
   b. Permits should be sold to residents for at least $15 per year per permit to cover the cost of the permits, signs, and enforcement.
      i. The City could offer the first permit free and charge for a second permit to help introduce the program successfully
   c. Optionally, the neighborhoods could opt to allow transit parking for a fee, which could be used to cover the cost of enforcement and then reinvested into the neighborhood.

Iliff Station Area Parking Template

The Iliff station is a location that will see predominantly departing trips, especially in the early stages of the station area development. The ridership projections for the Iliff station are among the highest along the entire I-225 line (with Nine Mile and Peoria-Smith projecting comparable boardings), which prompted the City of Aurora and RTD to collaborate on the construction of a 600 space parking garage which will serve the station demands on opening day and beyond.

ILIFF STATION AREA TYPOLOGY

The 2009 city parking study predicted Iliff to be a community center origin station. From that study, the primary user predicted at the Iliff station was the resident or customer whose destination is located outside of the Iliff planning area and who will likely begin to depart the area via the Iliff station, rather than the traditional single occupancy vehicle trip. The secondary user would be commuters who would originate in the Iliff planning area and move from that station to other destinations along the line. Some of these commuters could originate from the neighborhoods adjacent to the station area, but many will arrive as commuter drivers to access the station.

The 2009 parking study also designated the station area as a Transit Town Center, which is expected to provide a centralized mix of retail, residential, employment, and entertainment activities surrounding the Iliff station. The definition of that typology, as described in the previous study[1]:

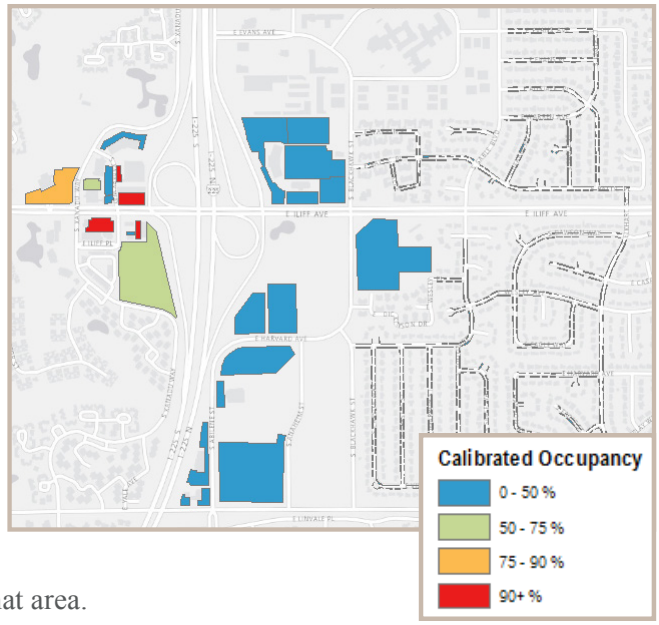
IMPLEMENTING STRATEGIES FROM THE SPECTRUM

The parking management spectrum presented in the previous section provides the typical progression from introduction of a parking problem to its solution. When implementing solutions, it is not often necessary to work through the entire spectrum, as initial management strategies could prove fruitful at solving the areas parking issues. It is not also necessary to follow the spectrum in chronological order, because the most obvious solution might be towards the back end of the spectrum.

Using the Park+ modeling application that is being developed for the I-225 Line and its corresponding stations, the Kimley-Horn team modeled the opening day parking demands for the Iliff station and the application of parking management strategies based on the spectrum defined in the previous section. The following iterations of the modeling application include the examination of existing parking demands, introduction of the new parking garage and commuter parking demands at the transit station, application of parking restrictions (both private and residential), introduction of new on-street parking supply, and impacts of potential Transportation Demand Management (TDM) strategies.

Existing Conditions

The graphic to the right depicts the existing conditions as projected in the Iliff station area. These conditions are for the peak hour of demand, which occurs at approximately 9am. These existing demands are based on parking occupancy data collected in the field in February 2015. The parking facilities in the graphic are all restricted to the users of the facilities they serve.



The graphic indicates that there is ample space in most of the parking facilities serving the businesses in the Iliff station area. There are some higher demand locations on the west side of I-225, attributed to the various retail and hotel uses. Overall, there is still a healthy surplus of spaces in that area.

Overall Parking Statistics

Demand: 1,210 spaces
Supply: 3,195 spaces
Average Parking Occupancy within 1200’ of Iliff Station: 33% (1,485 spaces available)

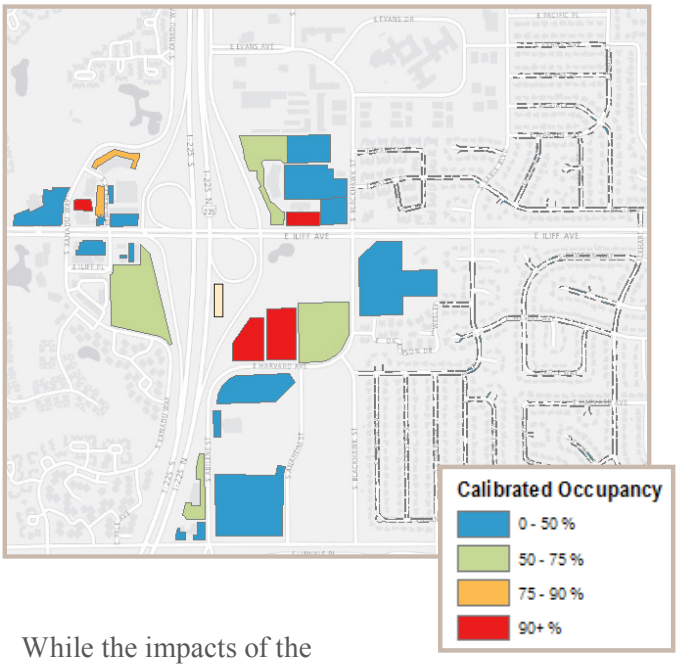
Opening Day Parking at Iliff (no restrictions)

The graphic to the right depicts the conditions on opening day. Unlike the Florida station in the previous section, the Iliff station will be served by the Iliff Parking Garage, which will provide 600 spaces for commuter demand on opening day. However, if the private parking facilities in the area are left unrestricted, some commuters may choose to park in those facilities based on their proximity to the station or the lack of fee at that location.

Based on the lack of private parking restrictions, the commuter demand is expected to distribute as follows:

Parking Facility	Existing Occupancy	Opening Day Occupancy
Applebee's	5%	37%
Baltic Place	0%	0%
Center Plaza	11%	16%
Comfort Inn	49%	96%
Fairfield Inn	53%	96%
NW Iliff/ Blackhawk Shared Lot	34%	34%
Motel 6	47%	47%
Restaurant Shared Parking	1%	1%
Stay America	28%	96%
The Forum	59%	72%
Iliff* Garage	--	65%

** Iliff Garage occupancy is lower than surrounding facilities because no parking restrictions have been placed on private parking and commuters choose to park in facilities closer to station. This represents worst case conditions that will likely not occur given the planned parking configuration at the station.*



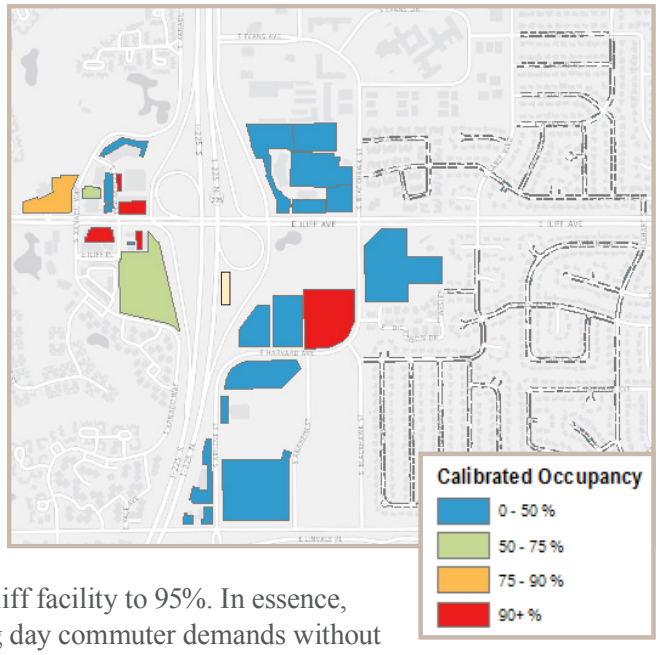
While the impacts of the commuter demand are varied, the general result is that commuter parkers will look for whatever parking is available to them if no restrictions are in place. This is primarily apparent in the parking lots closest to the station platform. The next exercise will be to evaluate parking restrictions for private parking sites.

Overall Parking Statistics

Demand: 1,782 spaces
Supply: 3,795 spaces
Iliff Station commuter demands (@ 9am): 572 spaces

Opening Day Parking at Iliff (with restrictions)

After evaluating the opening day scenario with no restrictions, it was apparent that commuter parking demand would look for any available space within a proximate walking distance of the station. The next scenario evaluated the application of private parking restrictions at the businesses around the station area. Additionally, the Iliff garage was restricted only to commuter users. At this time, there were no neighborhood parking restrictions applied to neighborhood to the east of the Iliff station area



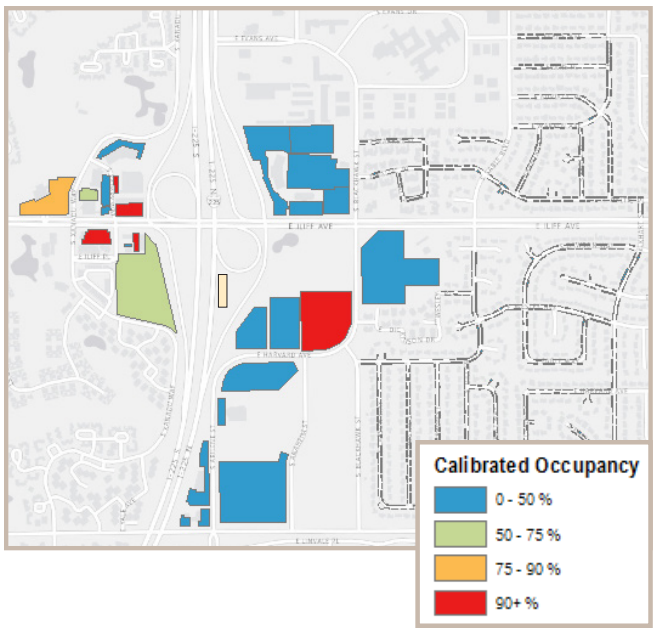
Based on the application of these restrictions, the commuter demands were isolated to the Iliff garage, as shown in the map to the right. With the restrictions in place, the commuter demand filled the Iliff facility to 95%. In essence, the Iliff garage is able to meet the needs of the opening day commuter demands without any additional parking, as long as that facility is maintained for those users. However, if public demands are allowed into that garage from existing or future land uses, the area may need additional parking management or infrastructure.

Overall Parking Statistics

Demand: 1,782 spaces
Supply: 3,795 spaces
Iliff Station commuter demands (@ 9am): 572 spaces

Opening Day Parking at Iliff (Public Parking)

After evaluating the opening day scenario with full restrictions, it appeared that all demands would be met as long as private restrictions were placed on private parking lots and the Iliff garage was prioritized for commuter use. This removed the “Commuter Only” restriction and opened the garage to any available public parker willing to pay the daily rate or purchase a priority permit. There were still no neighborhood parking restrictions applied to neighborhood to the east of the Iliff station area



Based on this configuration, the garage is still full, but the station produces another 16 spaces of

demand that spillover into the adjacent neighborhood. However, as this area develops, the spillover demands will only worsen.

- For this reason, the introduction of a neighborhood permit parking program should be included in the opening day parking management strategies.
- Additionally, the City should consider adding on-street parking around the Iliff garage as demands worsen and dictate the need for additional public parking in the area.

Overall Parking Statistics

Demand: 1,782 spaces
Supply: 3,795 spaces
Iliff Station commuter demands (@ 9am): 572 spaces

Neighborhood Permit Parking Program

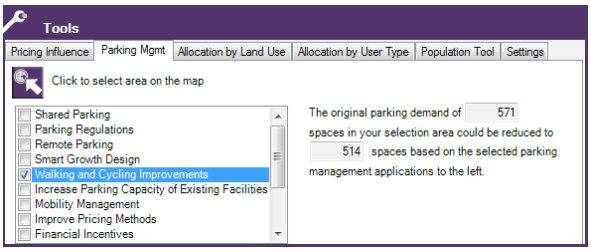
The previous scenario evaluated public parking demands at the Iliff parking garage and found that if the garage could have the potential to produce approximately 16 spaces of spillover demand on opening day. While this is not a tremendous amount of demand, the amount could grow as the area develops or commuter demands increase. The City should immediately implement a neighborhood parking program in the neighborhoods around the Iliff station. This will not cause latent demand issues as in the previous example at Florida, because the parking garage is capable of handling the opening day demands. However, should demands continue to grow, the City could consider implementing on-street parking around the station area.

Transportation Demand Management (TDM)

The next scenario evaluated the introduction of TDM measures at or around the station, including improving bicycle and pedestrian amenities, mobility management strategies, introducing bicycle parking facilities, or establishing remote parking and shuttling facilities. The Park+ model uses the demand generated by the observed land uses (in this case the Iliff transit station) and applies TDM reduction factors that are provided in national research standards. In this case, TDM reduction standards from the Victoria Transport Policy Institute were used to evaluate demand reduction potential.

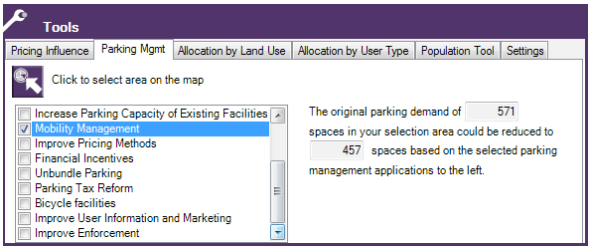
Improving Bicycle and Pedestrian Amenities

This TDM strategy typically aims to improve walking and cycling conditions along the routes to the transit station, including improved sidewalks, bike lanes, and pedestrian and cyclist protections. Based on the demand at the station, this type of improvement could result in a reduction in demand of approximately 57 spaces.



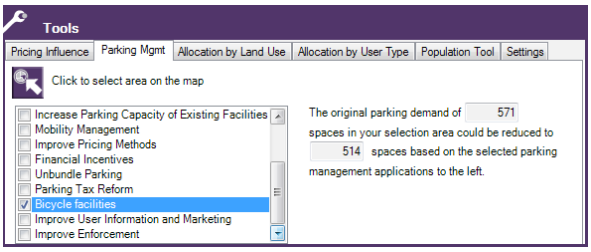
Mobility Management Improvements

This TDM strategy typically aims to improve travel patterns to and from the station, including encourage more efficient trips through changes in mode, timing of arrival and departure, and vehicle trip frequency. Based on the demand at the station, this type of improvement could result in a reduction in demand of approximately 114 spaces.



Introduce Bicycle Parking Facilities

This TDM strategy aims to improve mode split of arrival at the station by promoting bicycle commute trips. This includes the introduction of bicycle parking facilities at or near the station, as well as rider amenities at end destinations such as changing rooms and showers. Based on the demand at the station, this type of improvement could result in a reduction in demand of approximately 57 spaces.



SPECIFIC ILIFF STATION RECOMMENDATIONS

The solutions defined in the previous section used the parking management spectrum to identify potential challenges and opportunities for parking management within the Iliff station area. In general, the following recommendations build off of that analysis, while also incorporating a higher level of parking management that will need to be implemented in the area by the City of Aurora.

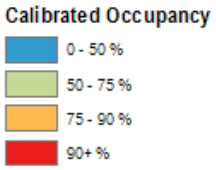
1. Open the Iliff parking garage with management strategies consistent with managing public parking, including:
   a. Daily parking rates of approximately $3 per hour
   b. Monthly priority permits of approximately $50 per month
2. Implement a neighborhood permit parking program for the neighborhoods that are adjacent to the Iliff station.
   a. Permits should be issued at the request of the residents, with sufficient evidence supporting the need for the permit.
   b. Permits should be sold to residents for at least $15 per year per permit to cover the cost of the permits, signs, and enforcement.

c. Alternatively, the neighborhood could opt to allow transit parking for a fee, which could be used to cover the cost of enforcement and then reinvested into the neighborhood.

3. As demand increases in the area (either through redevelopment or commuter demand growth) consider implementing on-street parking on the street network around the Iliff parking garage. This parking can be managed through several options, including:
   a. Paid transient parking with a combination of parking pay stations and pay by phone. The ideal combination would be a handful of parking pay stations (likely one or two kiosks) for all spaces, spaced appropriately to provide adequate coverage within a reasonable walking distance (see the asset light concept in the Technology Master Plan). When used in conjunction with a pay-by-phone platform, the pay by phone option can be promoted over the pay on foot option.
      i. Payment could be hourly or daily. In an hourly setting, the time limits should be long enough to support commuter parking needs. However, progressive parking rates could be used to promote some level of turnover while ensuring transit riders who are willing to pay can park without fear of a citation.
   b. Permitted commuter parking, with incentives for carpool vehicles. Permits could be priced to give a discount for registered carpool vehicles.
   c. In either case, revenues from parking should be reinvested back into the district after covering operating costs. The most likely reinvestment could be transit passes or incentives for area employers to help lessen the vehicular demand from their employees.

4. As the area redevelops, work with the development community to ensure that growth and new parking investment are consistent with the policies in this document and the vision of the larger Parking and Mobility Enterprise Business Plan. The following concepts should be integrated into new development:
   a. Reduced parking minimums, consistent with the TOD zoning policy in the City of Aurora code
   b. Shared parking supply, including development of centralized shared parking that is open to the public and able to serve multiple components of development.
   c. Further investment in non-automotive mobility options, including bike share, car share, bicycle parking, and transit incentives

Station Area Projections and Strategies



Building off of the specific station area examples in the previous section, the following sections provide a general overview of parking demand conditions at each station for existing conditions, opening day, and 2035 build-out conditions. The legend to the right defines the graphics shown with each scenario, which includes parking occupancy levels for parking facilities around each station. The demands shown in each scenario for each station do not include single-family residential demand or parking capacity. The opening day and projected build-out conditions (2035 ridership projections and TOD development estimates) include parking management considerations, based on the recommendations and policies found in this business plan.

The following stations were evaluated:

Station	2009 Study Designation	Description
Dayton	Origin	Existing station that is surrounded by residential. Moderate demands at the station today.
Nine Mile	Origin	Existing station that is surrounded by mixed-use commercial and residential. Demand for this station is intense and creates spillover and a latent demand of approximately 250 spaces from users who cannot access the station before parking is filled.
Iliff	Origin/ Destination	Proposed station along the I-225 line. City of Aurora is building a 600 space parking garage to serve the needs of commuters and catalyze development in the area.
Florida	Origin/ Destination	Proposed station along the I-225 line. No parking is envisioned for this station. The current mix of land uses around the station includes residential, commercial, office, and medical office.
MetroCenter	Origin	Proposed station along the I-225 line. 200 parking spaces were included in the Fastrakcs Program but are deferred per city request so the city may have more time to analyze the best location and design of the parking facility. The station is surrounded by retail uses, primarily of the large shopping center variety, as well as office.
2nd/Abilene	Origin	Proposed station along the I-225 line. RTD is building a 200 space surface lot to accommodate demands. The station is surrounded by office, retail, and multi-family residential uses.
13th Avenue	Origin	Proposed station along the I-225 line. RTD is building a 250 space surface lot to accommodate demands. Primary land uses surrounding this station include residential and office/industrial uses.
Colfax	Destination	Proposed station along the I-225 line. No parking is envisioned as this station is intended to be a destination serving primarily alightings associated with the various medical facilities surrounding the station.
Fitzsimons	Destination	Proposed station along the I-225 line. No parking is envisioned as this station is intended to be a destination serving primarily alightings associated with the various medical facilities and future development surrounding the station.
Peoria	Origin	Proposed station along the I-225 line. RTD is building a 550-space surface lot to accommodate demands. The station is expected to be one of the busiest along the line as it connects the East Corridor, and I-225/Aurora Line. Surrounding land uses are primarily warehouse and industrial.

The 40th and Airport station will also likely be part of the Aurora light rail and parking systems, but was not included in this analysis given the distance from the core of the project study area. The location has an existing 1,079 space park-and-ride lot that primarily serves DIA traffic. The site is envisioned as a prime TOD site, especially the greenfield area north of the park-and-ride, as well as south of the parking lot and east of Salida Street.

EXISTING CONDITIONS

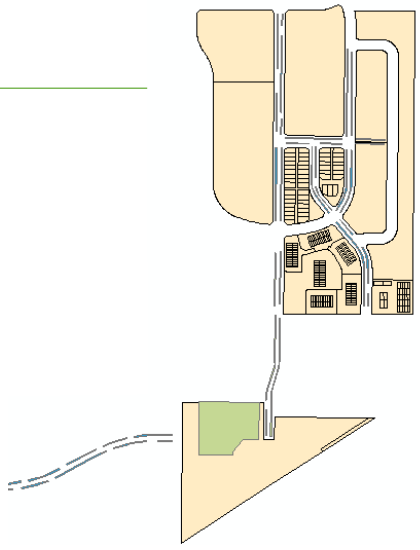
Existing conditions represent winter/spring 2015 parking demand conditions, which were used to set a baseline prior to the opening of the light rail line. This data is based on actual parking occupancy data collected at each of the station areas. The total area parking demand for each station is based on observed parking demand conditions during those collection periods.

Dayton Station

Station Parking Demand: 175 spaces
Total Area Parking Demand: 292 spaces
Total Area Parking Supply: 1,190 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 250 spaces
Private Parking Supply: 940 spaces

Existing parking demand utilizes a little more than half of the existing surface lot. On-street parking is largely unrestricted, but only 50% utilized, consistent with observed counts in February 2015.

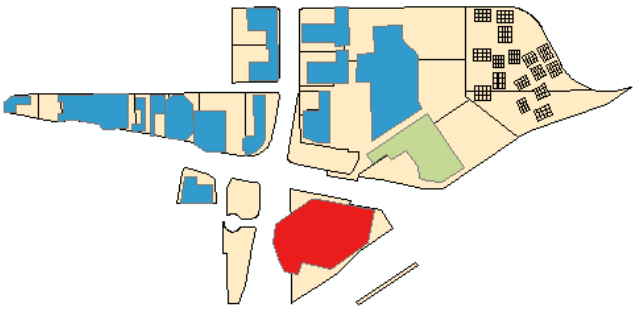


Nine Mile Station

Station Parking Demand: 1,250 spaces
Total Area Parking Demand: 1,500 spaces
Total Area Parking Supply: 2,404 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 1,225 spaces
Private Parking Supply: 1,179 spaces

Existing parking demand is maxed out at the station and sees some spillover into adjacent commercial parking areas. There is also an unquantifiable amount of latent demand at the station for patrons who cannot access the station early enough to find parking before it fills up. Much of this latent demand is expected to transfer to the Iliff station on opening day, and is reflected in the RTD ridership projections provided for that station.



Iliff Station

Station Parking Demand: N/A
Total Area Parking Demand: 657 spaces
Total Area Parking Supply: 3,195 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 3,195 spaces

Parking demands are relatively low in the middle of the day, with most occupancies below 50% of total parking capacity.

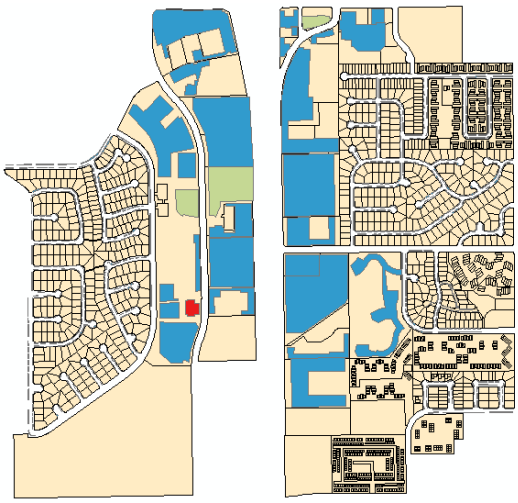
Florida Station

Station Parking Demand: N/A
Total Area Parking Demand: 2,525 spaces
Total Area Parking Supply: 7,261 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 7,261 spaces

Average Parking Occupancy within 1200' of Florida Station: 38% (1,700 spaces available)

Parking demands are relatively low in the middle of the day, with most occupancies below 50% of total parking capacity.



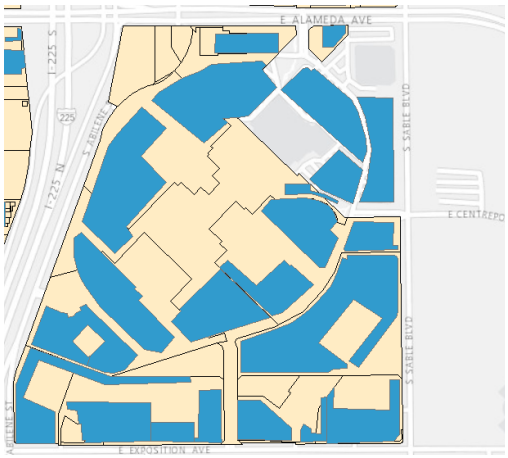
MetroCenter Station

Station Parking Demand: N/A
Total Area Parking Demand: 613 spaces
Total Area Parking Supply: 4,984 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 4,984 spaces

Parking demands are extremely low during peak commute conditions, with most occupancies below 50% of total parking capacity.

* Parking demands in this area are based on general retail and office demands observed in the Aurora area. Parking occupancy counts were not observed for this location.

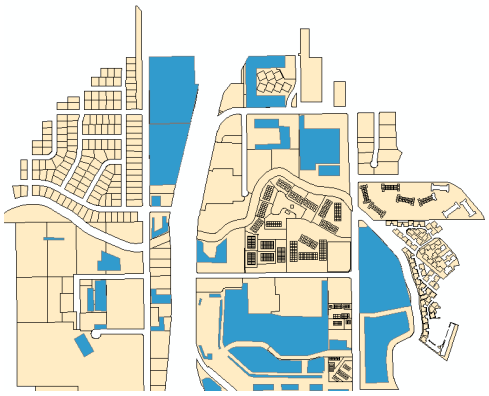


Abilene Station

Station Parking Demand: N/A
Total Area Parking Demand: 140 spaces
Total Area Parking Supply: 2,287 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 2,287 spaces

Parking demands are extremely low during peak commute conditions, with most occupancies below 50% of total parking capacity.



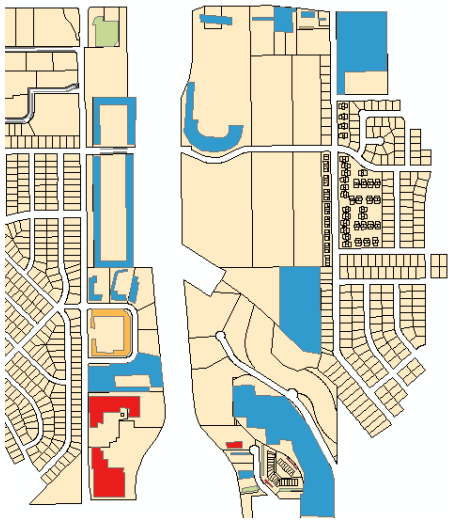
* Parking demands in this area are based on general retail and office demands observed in the Aurora area. Parking occupancy counts were not observed for this location.

13th Avenue Station

Station Parking Demand: N/A
Total Area Parking Demand: 190 spaces
Total Area Parking Supply: 1,446 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 1,446 spaces

Parking demands are relatively low in the middle of the day, with most occupancies below 50% of total parking capacity.

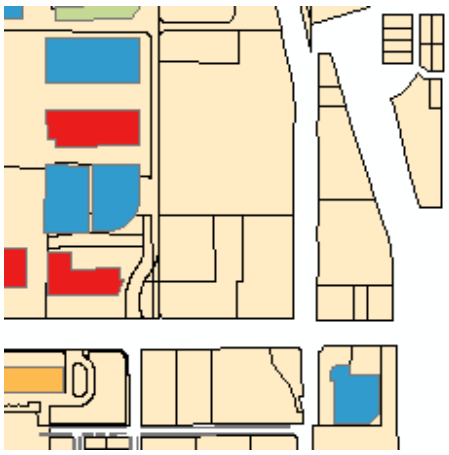


Colfax Station

Station Parking Demand: N/A
Total Area Parking Demand: 4,860 spaces
Total Area Parking Supply: 4,422 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 4,422 spaces

Medical campus demands are high, especially in the service area of the proposed Colfax station. There is a current deficit of spaces when looking at the quarter to half mile service area around the station location. (This deficit is likely offset on other portions of the campus).

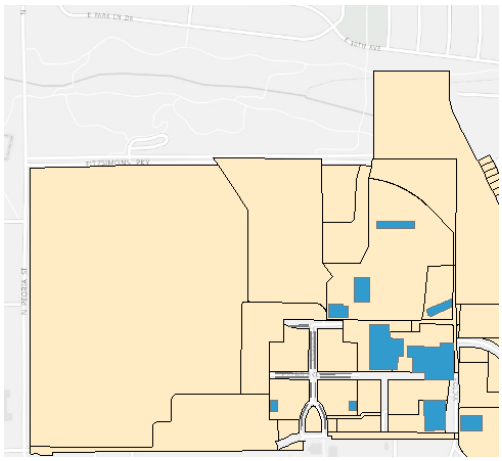


Fitzsimons Station

Station Parking Demand: N/A
Public Parking Supply: 0 spaces

RTD Parking Supply: 0 spaces
Private Parking Supply: 0 spaces

There is very little demand in the vicinity of the proposed Fitzsimons station, based on a quarter- to half-mile walking radius.

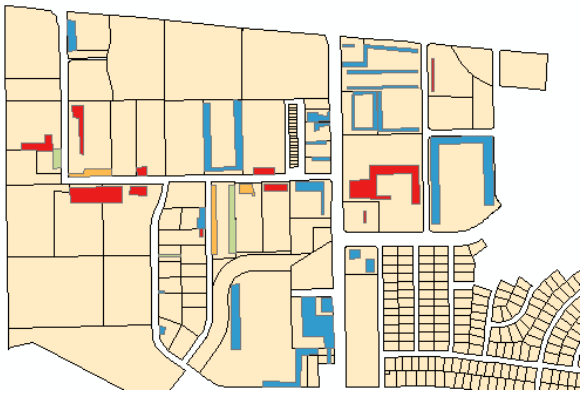


Peoria Station

Station Parking Demand: N/A
Total Area Parking Demand: 1,384 spaces
Total Area Parking Supply: 1,526 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 1,526 spaces

Parking demands in the area vary from very low to moderately high during daytime activity. Much of the on-site demands are driven by delivery and employee use.



OPENING DAY CONDITIONS

The opening day conditions utilize the same framework for existing conditions, while applying the new station demands, including the station platform, any parking capacity that was included, and ridership estimates from RTD. The table to the right indicates the RTD ridership, the parking capacity provided, and the overall parking demand for the station.

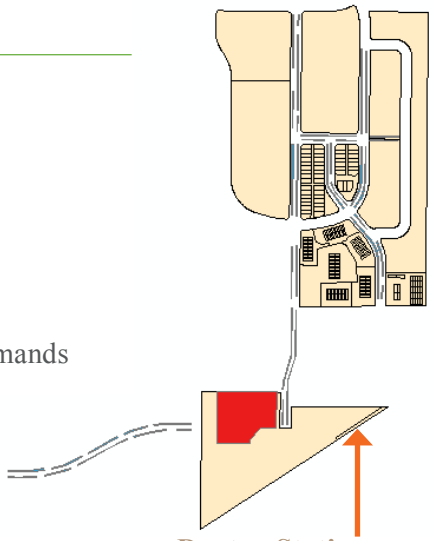
Station	RTD Daily Ridership Projections	Parking Provided	Parking Demand Projection
Dayton	1,660 boarding	250 spaces	237 spaces
Nine Mile	6,110 boarding	1,225 spaces	2,199 spaces
Iliff	1,700 boardings	600 spaces	572 spaces
Florida	700 boardings	0 spaces	257 spaces
MetroCenter	1,920 boardings	0 spaces	650 spaces
Abilene	710 boardings	200 spaces	240 spaces
13th Avenue	950 boardings	250 spaces	320 spaces
Colfax	1,110 boardings	0 spaces	0 spaces
Fitzsimons	740 boardings	0 spaces	0 spaces
Peoria	3,510 boardings	550 spaces	1,185 spaces

Dayton Station

Station Parking Demand: 237 spaces
Total Area Parking Demand: 453 spaces
Total Area Parking Supply: 1,190 spaces

Public Parking Supply: 346 on-street spaces
RTD Parking Supply: 250 spaces
Private Parking Supply: 594 spaces

Station area parking demands are reaching capacity, while on-street demands remain relatively low. Further increases in station area demands will necessitate investment in on-street parking management.

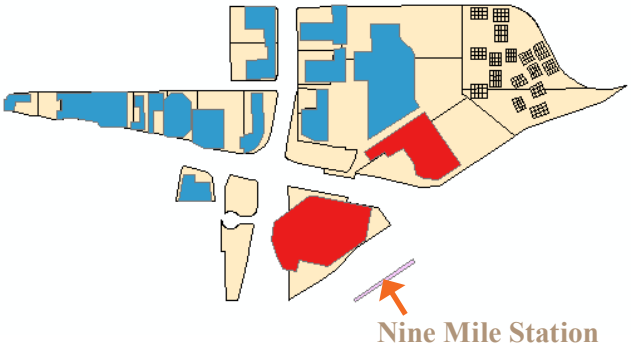


Nine Mile Station

Station Parking Demand: 2,199 spaces
Total Area Parking Demand: 2,352 spaces
Total Area Parking Supply: 2,404 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 1,225 spaces
Private Parking Supply: 1,154 spaces

Parking demand further exceeds capacity at the Nine Mile garage and creates a critical spillover problem in adjacent shopping areas. Latent demand at the station is now close to 800 spaces.



Parking Management Strategies

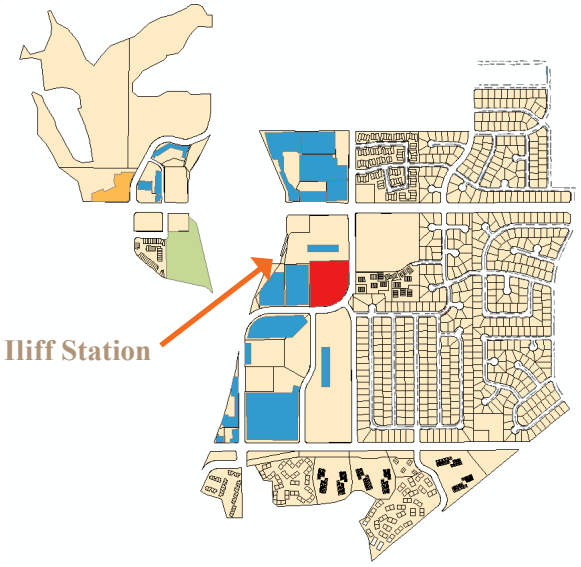
- Monitor changes in demand after opening of I-225/Aurora Line station north of Nine Mile
- Monitor changes in demand after continued mixed-use and TOD developments

Iliff Station

Station Parking Demand: 572 spaces
Total Area Parking Demand: 1,232 spaces
Total Area Parking Supply: 3,795 spaces

Public Parking Supply: 600 spaces
On-Street Parking Supply: 100 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 3,095 spaces

The parking demand generated by the transit station at Iliff fills the new garage to capacity, while the parking at surrounding development remains relatively underutilized.



Parking Management Strategies

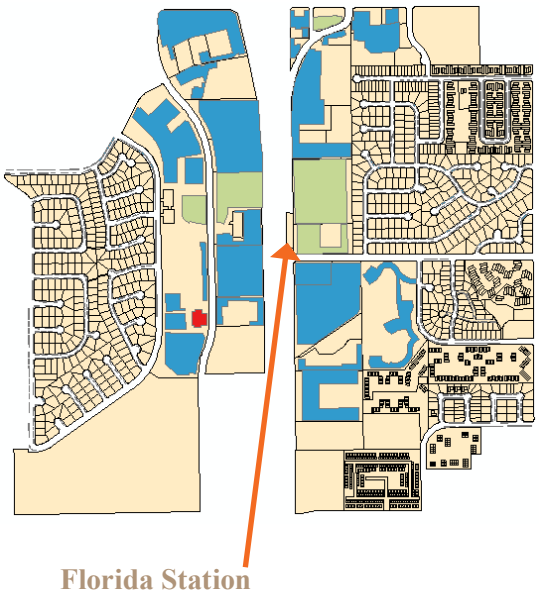
- Monitor demands as commuters from Nine Mile relocate to Iliff
- If demands begin to exceed supply of Iliff garage, consider managing on-street parking capacity along Blackhawk and Harvard (meter and permit)
- The neighborhoods and residential developments directly adjacent to the station should be protected by neighborhood permit parking programs.
- As demands increase around the Iliff station area, the City could consider leasing private spaces in underutilized parking facilities to support demands at and around the station.

Florida Station

Station Parking Demand: 257 spaces
Total Area Parking Demand: 2,762 spaces
Total Area Parking Supply: 7,261 spaces

Public Parking Supply: 0 spaces
On-Street Parking Supply: 100 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 7,261 spaces

The parking demand generated by the station is most likely to try to utilize adjacent retail/office parking, or move into the neighborhood to the east of EcoTech. Some of the office and medical parking demand in this area is reduced by a commute shift to transit.



Parking Management Strategies

- Manage the 100 on-street metered/permit parking spaces along Florida Avenue
- Lease 100-150 spaces from EcoTech and 24 Hour Fitness to use for commuter demands. Excess revenues

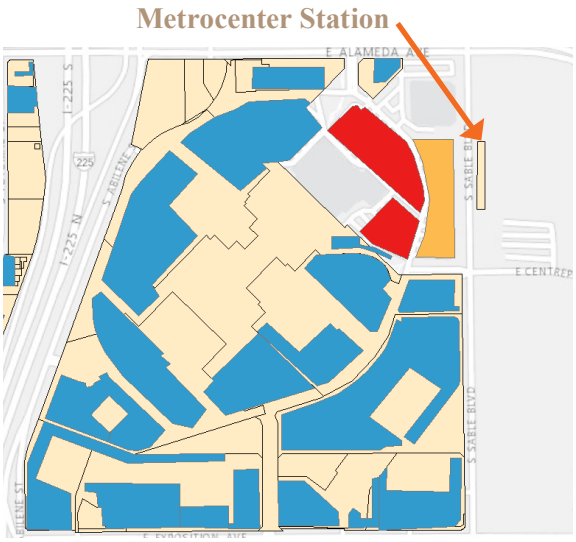
from this area should be reinvested back in to the areas supporting parking needs (eco-passes).

» Consider TDM reductions like bike parking and investments in transit incentives for employees

MetroCenter Station

Station Parking Demand: 650 spaces
Total Area Parking Demand: 1,585 spaces
Total Area Parking Supply: 9,746 spaces

Public Parking Supply: 600-700 spaces leased from the Town Center of Aurora
On-Street Parking Supply: 100 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 8,946 spaces



* Leased spaces at Town Center

Parking Management Strategies

» The parking demand generated by the station is will likely be best served by using a combination of on-street parking (approximately 80 metered and permitted spaces) and leased spaces (600-700) at the Town Center at Aurora.

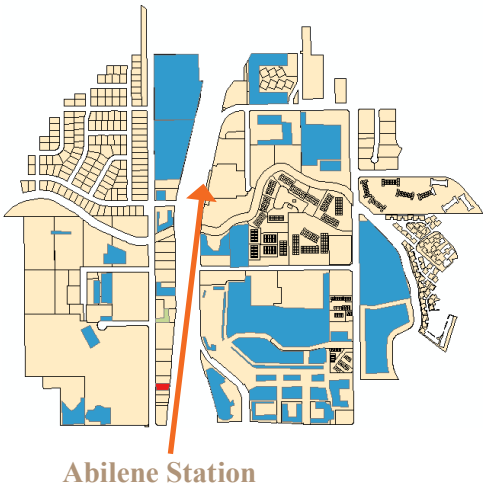
» During peak commuter conditions (7am to 4pm) the mall does not experience peak demands, allowing for an efficient shared use of spaces.

Abilene Station

Station Parking Demand: 240 spaces
Total Area Parking Demand: 380 spaces
Total Area Parking Supply: 2,287 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 2,287 spaces

Station area demands are 240 spaces, with no parking dedicated for commuter parking. Adjacent parking areas remain underutilized because of private parking restrictions.



Parking Management Strategies

» Add on-street parking around the station as available and appropriate given current street right-of-ways

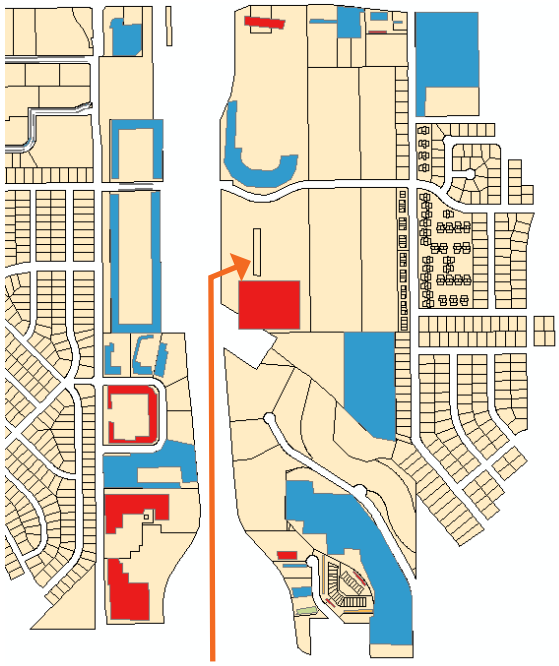
» Consider leasing private spaces in underutilized parking facilities to support demands at and around the station

13th Avenue Station

Station Parking Demand: 320 spaces
Total Area Parking Demand: 511 spaces
Total Area Parking Supply: 1,696 spaces

Public Parking Supply: 0 spaces
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 250 spaces
Private Parking Supply: 1,446 spaces

The parking demand generated by the station is greater than the allocated spaces in the park-and-ride lot, meaning additional capacity or management strategies will likely be necessary.



13th Avenue Station

Parking Management Strategies

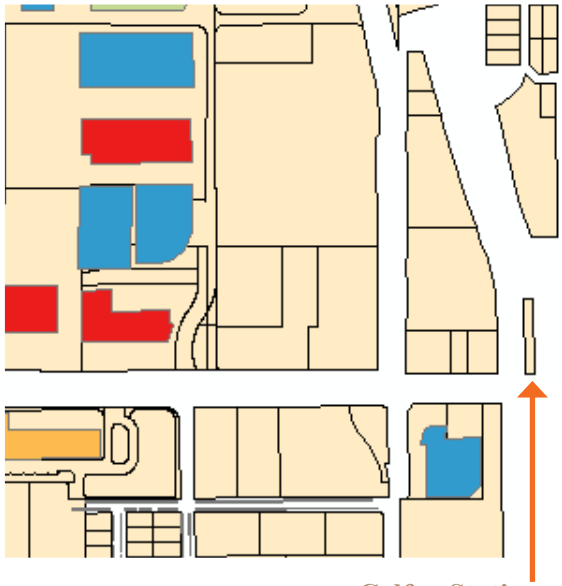
- Right-of-way along 13th Avenue will not likely provide enough space for on-street parking
- Instead, the City should implement some level of mobility improvements here, including access to the station through bike and pedestrian amenities. Some of these are being covered now with Denver Regional Council of Governments (DRCOG) grant funding.
- The City should also implement neighborhood permit parking in the neighborhoods adjacent to the station to protect them from spillover parking demands.

Colfax Station

Station Parking Demand: N/A
Total Area Parking Demand: 4,374 spaces
Total Area Parking Supply: 4,422 spaces

Public Parking Supply: 0 spaces
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 4,422 spaces

Medical campus demands continue to be high, but demands are reduced by the introduction of the transit line. This station is predicted entirely as a destination station, with boardings and alightings associated with the campus and surrounding uses.



Colfax Station

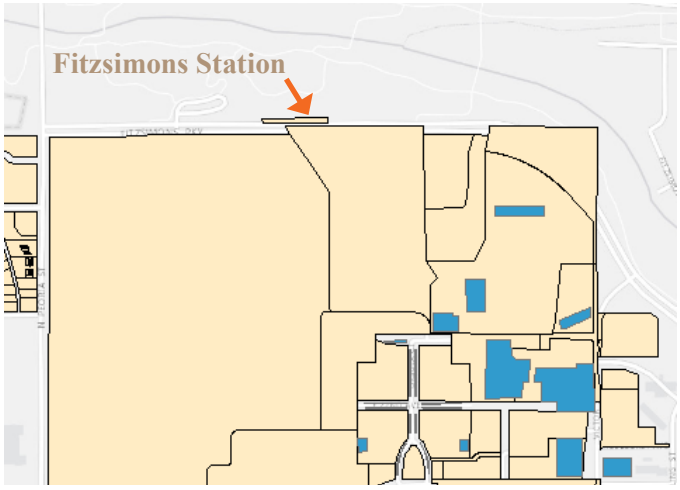
Station Area Parking Management Policies

Fitzsimons Station

Opening Day
Station Parking Demand: N/A spaces

Public Parking Supply: 0 spaces
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 0 spaces

There is very little demand in the vicinity of the proposed Fitzsimons station, based on a quarter to half mile walking radius.

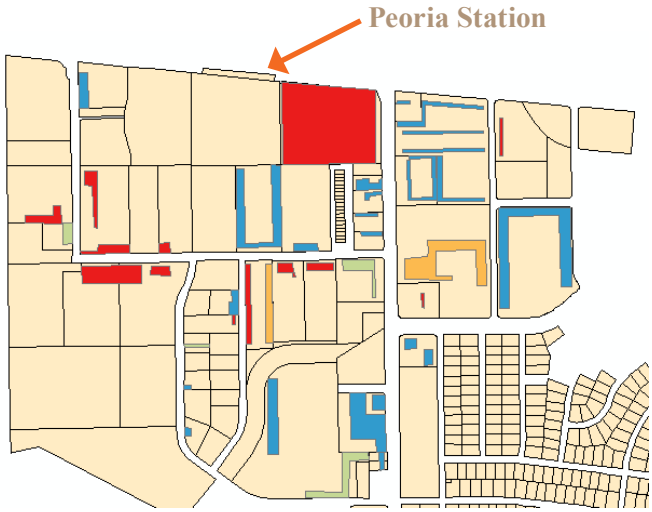


Peoria Station

Station Parking Demand: 1,185 spaces
Total Area Parking Demand: 2,598 spaces
Total Area Parking Supply: 2,096 spaces

Public Parking Supply: 0 spaces
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 550 spaces
Private Parking Supply: 1,526 spaces

The Peoria Station is expected to have in excess of 3,500 daily boardings, which relates to a parking demand equivalent to today's Nine Mile station. There is a proposed 550 space parking lot, but that will not likely be enough to serve the created demand. The model predicts a latent demand of approximately 500 spaces.



Parking Management Strategies

- Based on the cross-section of the surrounding roadways, there are probably only about 20 spaces available for on-street parking.
- The remaining 450-500 spaces would likely need to be met through shared parking management or trip reductions.
- The parking management strategies outlined in the Peoria Station Catalytic Project Report provide some additional insights into the use of private parking facilities in the vicinity of the station.
- Additionally, that document provides guidance on how demands could be balanced from this station to other stations along the East Corridor.

2035 FULL BUILD-OUT CONDITIONS

The 2035 full build-out conditions are based on two pieces of information. First, the City of Aurora Planning Department provided growth projections for dwelling units, employment, and retail, which were converted to development predictions. Second, RTD provided ridership projections for the stations, which showed increased daily boardings for each of the stations. The tables below provide a summary of increased residential, office, and commercial dwelling units and square footage, as well as the RTD ridership projections.

Land Use Category	2035 increase
Residential	24,395 dwelling units
Office	27,653,215 square feet
Commercial	2,814,035 square feet
Industrial	165,422 square feet

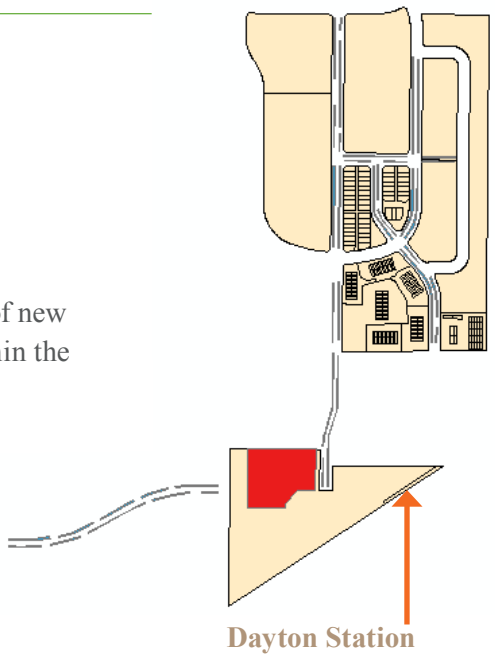
Station	RTD Daily Ridership Projections
Dayton	2,170 boardings
Nine Mile	8,660 boardings
Iliff	2,230 boardings
Florida	910 boardings
MetroCenter	2,850 boardings
Abilene	1,540 boardings
13th Avenue	1,920 boardings
Colfax	2,140 boardings
Fitzsimons	2,000 boardings
Peoria	5,890 boardings

Dayton Station

Station Parking Demand: 293 spaces
Total Area Parking Demand: 760 spaces
Total Area Parking Supply: 1,190 spaces

Public Parking Supply: 346 on-street spaces
RTD Parking Supply: 250 spaces
Private Parking Supply: 594 spaces

The growth in commuter demands, coupled with the introduction of new development in the area, have more than doubled the demands within the Dayton station area.



Parking Management Strategies

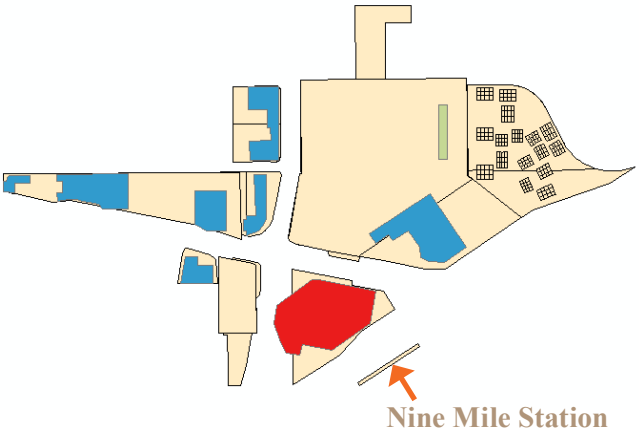
- Focus on public-private investment with new development to create true parking supply for rail
- Utilize shared parking to reduce the footprint of parking for new development

Station Area Parking Management Policies

Nine Mile Station

Station Parking Demand: 1,830 spaces
Total Area Parking Demand: 2,539 spaces
Total Area Parking Supply: 2,612 spaces

Public Parking Supply: 1,225 spaces*
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 1,387 spaces



** Assumes City management of RTD spaces*

Parking demand in the area is slightly reduced as vehicle-dependent land uses are replaced with TOD land uses. The station area demand for Nine Mile is also reduced slightly (~100 vehicles) as riders access rail at other points along the line.

Parking Management Strategies

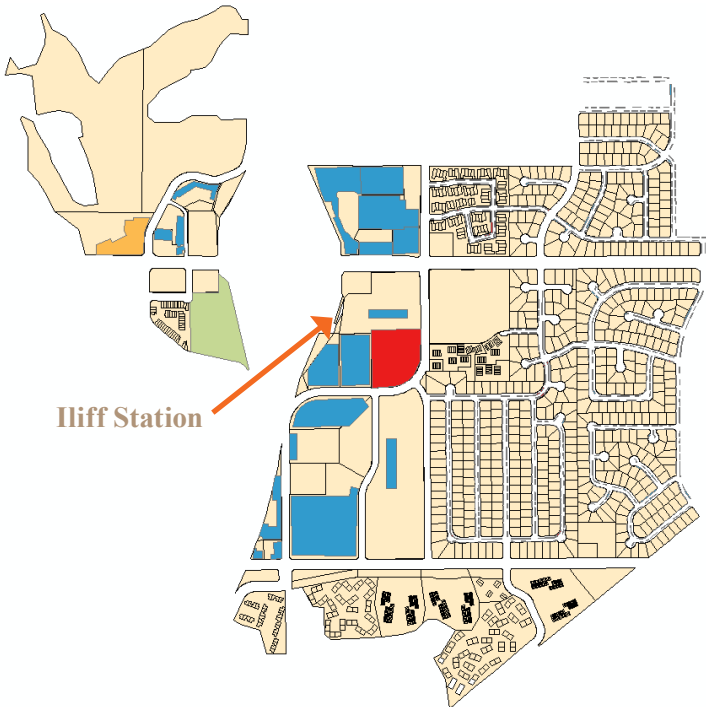
- Consider City management of Nine Mile parking garage as part of the overall Aurora Parking and Mobility Enterprise
- Promote shared parking between the station and new mixed-use parking supply
- Implement pedestrian and wayfinding improvements to improve connectivity

Iliff Station

Station Parking Demand: 710 spaces
Total Area Parking Demand: 3,256 spaces
Total Area Parking Supply: 5,988 spaces

Public Parking Supply: 600 spaces
On-Street Parking Supply: 100 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 5,288 spaces

Parking demand in the area nearly doubles with the introduction of new land use demands. Shared-use parking between the office, residential, and transit uses allow for a lessened parking supply to support the needs of the area.



Parking Management Strategies

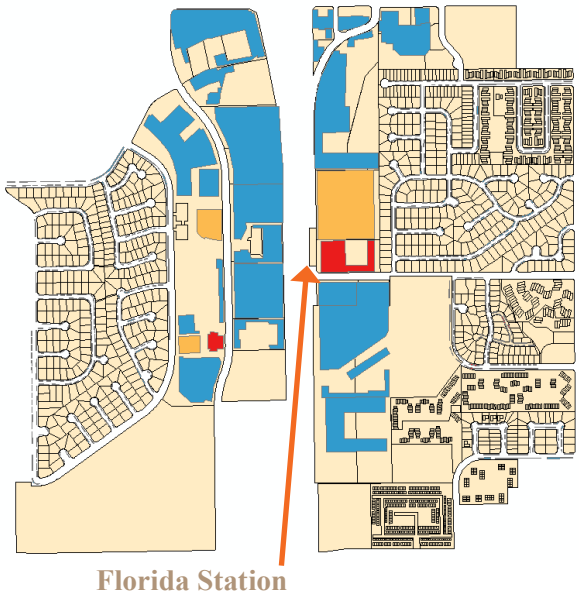
- Promote shared parking between mixed uses
- Increase on-street parking supply to support commercial and office needs within the area
- Focus on first and last mile amenities to promote good connections with the station and the areas served within ¼- and ½-mile areas

Florida Station

Station Parking Demand: 289 spaces
Total Area Parking Demand: 2,732 spaces
Total Area Parking Supply: 8,708 spaces

Public Parking Supply: 150 spaces*
On-Street Parking Supply: 100 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 8,458 spaces

Despite the fact that new developments occur in the area, parking demand does not increase by a considerable amount as more people are accessing the area through rail transit. Employment demands are further served by rail access



Parking Management Strategies

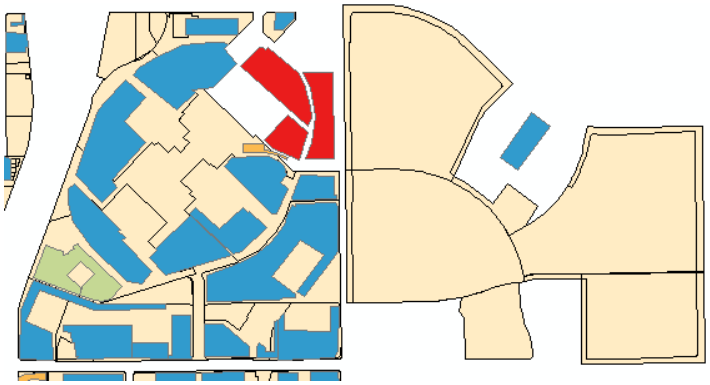
- Focus on public-private investment with new development to create true parking supply for rail
- Utilize shared parking to reduce the footprint of parking for new development
- Work with the hospital to determine true parking needs as employees transition to rail access

* Leased spaces at EcoTech

MetroCenter Station

Station Parking Demand: 905 spaces
Total Area Parking Demand: 3,377 spaces
Total Area Parking Supply: 9,814 spaces

Public Parking Supply: 600 spaces*
On-Street Parking Supply: 100 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 9,114 spaces



** Leased spaces at Town Center*

Parking demand in the area nearly doubles without a significant increase in parking supply. Neighborhood parking demands are able to share space with transit users and new office demands, with minimal conflict.

Parking Management Strategies

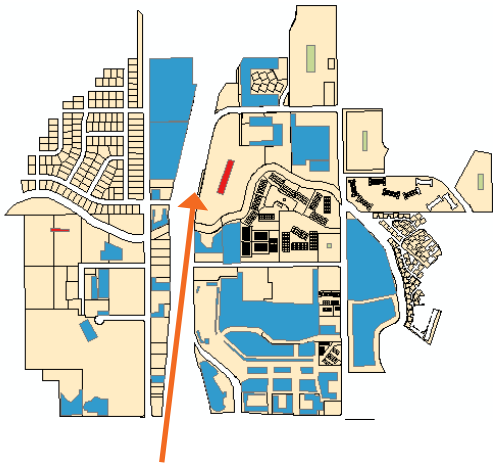
- Parking demands that were housed in leased spaces at the mall should be moved to public supply created as part of public-private partnerships
- New residential leases should include financial incentives to reduce vehicle ownership
- Share parking supply amongst new development should be operated to serve all needs

Abilene Station

Station Parking Demand: 489 spaces
Total Area Parking Demand: 1,584 spaces
Total Area Parking Supply: 4,234 spaces

Public Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 4,234 spaces

Station area demands increase to 489 spaces, with no parking dedicated for commuter parking. New development adds parking supply to support on-site demands, without utilizing existing surplus (due to private parking restrictions).



Abilene Station

Parking Management Strategies

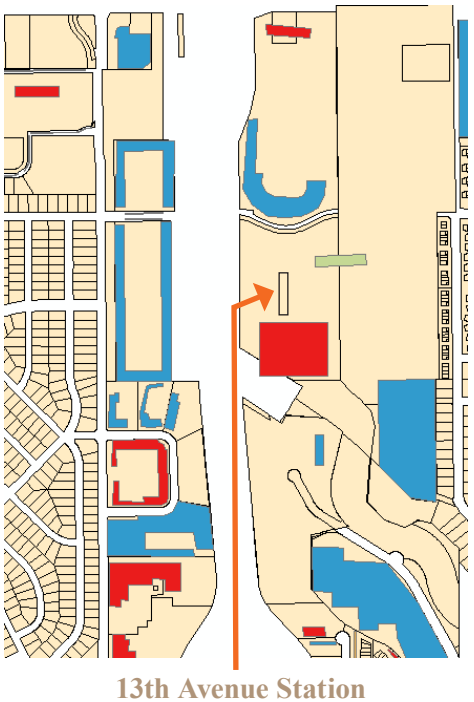
- Focus on public-private investment with new development to create true parking supply for rail
- Utilize shared parking to reduce the footprint of parking for new development
- City could consider leasing private spaces in underutilized parking facilities to support demands at and around the station

13th Avenue Station

Station Parking Demand: 610 spaces
Total Area Parking Demand: 2,115 spaces
Total Area Parking Supply: 3,467 spaces

Public Parking Supply: 250 spaces
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 3,217 spaces

New development brings a large increase in parking demands and activity at the rail station. Demand at the rail station does not increase proportionally as the station transitions into a destination station.



13th Avenue Station

Parking Management Strategies

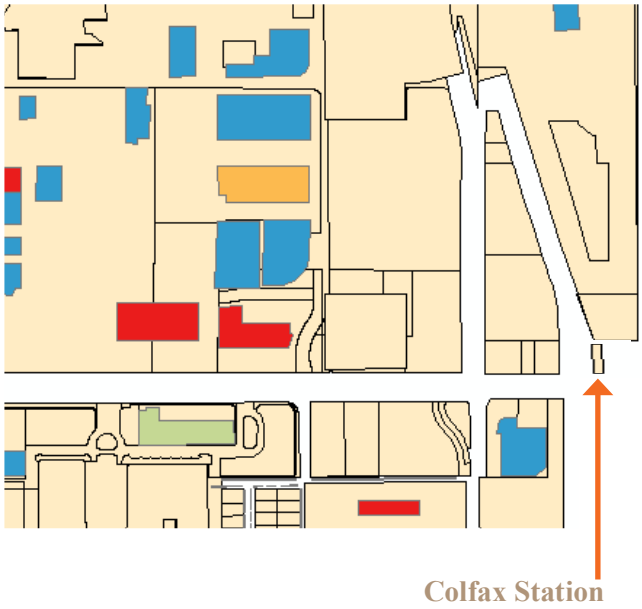
- Consider City management of 13th Avenue parking lot as part of the overall Aurora Parking and Mobility Enterprise
- Shared parking can support the increased transit demands through public-private investment and the creation of public spaces in private development
- Investments should be made in non-vehicular amenities and first and last mile provisions to help transition the area into a more walkable and bikeable location that serves a number of different arrival patterns at the station.

Colfax Station

Station Parking Demand: N/A
Total Area Parking Demand: 5,260 spaces
Total Area Parking Supply: 4,990 spaces

Public Parking Supply: 0 spaces
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 4,990 spaces

Medical campus demands continue to be reduced by the introduction of the transit line. However, new demands in the area outpace parking investment, leading to a slight deficiency. This station is predicted to be entirely a destination station, with boardings and alightings associated with the campus and surrounding uses.



Parking Management Strategies

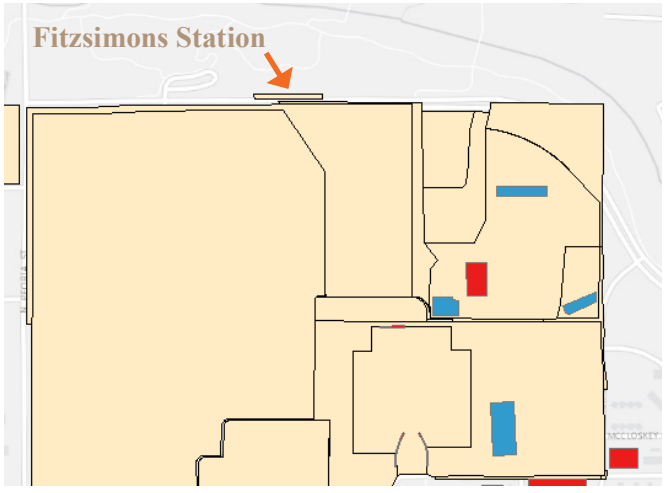
» City investment in public parking in this area (on-street or off-street, or a combination of both) could continue to serve the area without detracting from rail ridership.

Fitzsimons Station

Station Parking Demand: N/A spaces
Total Area Parking Demand: 1,506 spaces
Total Area Parking Supply: 2.405 spaces

Public Parking Supply:
0 spaces
On-Street Parking Supply:
0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 2,405 spaces

The parking demands generated by new development will self-park on their own sites. However, site demands are minimized by the presence of the walk up station, which serves as both destination (for hospital and development uses) and origin (for new residential users going elsewhere.)



Parking Management Strategies

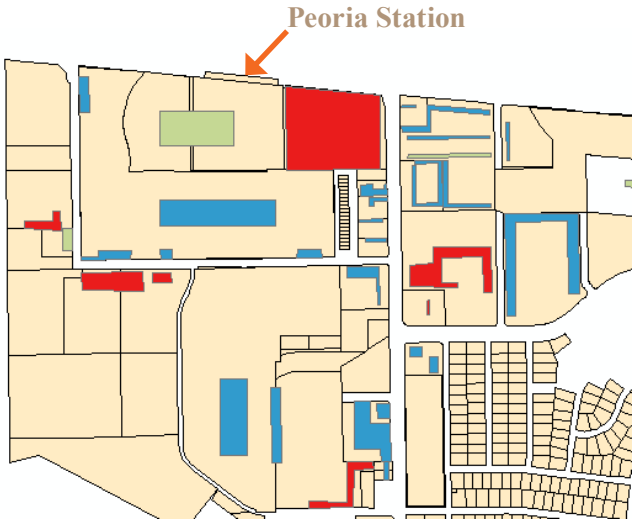
» New residential leases should include financial incentives to reduce vehicle ownership
» Shared parking supply amongst new development should be operated to serve all needs
» Pedestrian and cycling connections and amenities will be critical

Peoria Station

Station Parking Demand: 1,870 spaces
Total Area Parking Demand: 3,234 spaces
Total Area Parking Supply: 5,207 spaces

Public Parking Supply: 2,950 spaces*
On-Street Parking Supply: 0 spaces
RTD Parking Supply: 0 spaces
Private Parking Supply: 3,095 spaces

The Peoria Station is expected to see continued increases in demand, especially after the airport line is completed. However, the introduction of shared public parking supply (as defined in the East Corridor EIS and Catalytic Project Documents) allows the station demands to be met while providing parking supply for new development in the area.



Parking Management Strategies

- Shared parking can support the increased transit demands through public-private investment and the creation of public spaces in private development
- Investments should be made in non-vehicular amenities and first and last mile provisions to help transition the area into a more walkable and bikeable location that serves a number of different arrival patterns at the station
- This station could potentially use a new public-private parking facility to support transit growth and expected development, as outlined in the Peoria Station Catalytic Project Report
- Additionally, that document provides guidance on how demands could be balanced from this station to other stations along the East Corridor.