



NJMC Guidelines for Green Development and Redevelopment

Part 3 – Transportation Efficient Development

**New Jersey Meadowlands Commission
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SECTION 1: INTRODUCTION

Sound transportation planning and design are the backbone of smart land use and development. The availability of alternative transportation is among the principles of Smart Growth, a term used to describe well-planned, well-managed growth that adds new homes and creates new jobs, while preserving open space, farmland, and environmental resources. Other Smart Growth principles include mixed-use development, walkable town centers and neighborhoods, mass transit accessibility, sustainable economic and social development and preserved green space. A multi-modal transportation system can improve the accessibility to developments, reduce automobile-related traffic congestion, preserve existing roadway capacity, and improve the overall quality of life for citizens.

The Hackensack Meadowlands Transportation Planning District Act (Act), effective June 24, 2005, established a Transportation Planning District within the District. The law required the creation of a comprehensive district-wide transportation plan that designates transportation projects and the associated funding needed to sustain future economic growth. In November 2007, the NJMC completed the Meadowlands District Transportation Plan (Plan), which fulfills the requirements of the Act, incorporates Smart Growth principles, and plays an important role in the NJMC's goal to improve mobility and accessibility for passengers and freight throughout the District.

This technical guideline has been developed by NJMC staff to provide guidance on transportation efficient measures for developments and redevelopments within the District. These techniques, when used appropriately, will lessen impacts on existing infrastructure, promote the use of transit, reduce automobile traffic and emissions, preserve existing roadway capacity, and in turn, result in a more efficient transportation system in the District.

SECTION 2: SITE SELECTION

Creating a green development, with respect to transportation, begins with site selection.

2.1 Redevelopment

The selection of a site can significantly affect the impacts a development makes on the transportation infrastructure. A vacant parcel of land will have the greatest impact on the transportation network because no vehicular trips are currently associated with the land. Conversely, redeveloping an underutilized or outdated development replaces a property's existing vehicular trips with the trips associated with the new development.



A traffic impact analysis (TIA) is required to be prepared for each application in accordance with N.J.A.C. 19:4-7.10. For a redeveloped site, the results of the TIA will yield positive impacts with respect to the generation of traffic. All trips associated with the existing development on a property reduce the number of new trips that are required to be overlaid on the transportation network within the TIA. The NJMC's District Transportation Plan Rules additionally promote redevelopment by providing a reduction in the transportation development fee (TDF) formula for all existing trips. The guidelines for this reduction are detailed in the District Transportation Plan Rules at N.J.A.C. 19:7-5.2(c).

2.2 Infill Development

When it is not possible to locate a property that would be suitable for redevelopment, developing vacant parcels that would meet the conditions of infill development may have a significantly smaller impact on the transportation network than the development of stand-alone vacant parcels. Infill parcels with rectangular shapes are typically surrounded along three sides by



non-vacant lots. Such infill parcels have a lesser impact on the transportation network because the roadway infrastructure required to support their development has already been constructed. Additional infrastructure including roadways, intersections, and sidewalks are typically not necessary to access such development.

In order to encourage infill development within the Meadowlands District, a 5% credit towards the TDF is provided in the District Transportation Plan Rules at N.J.A.C. 19:7-5.3(c)4ii.

SECTION 3: LAND USES

3.1 Mixed-Use Development (Internal Trips)

A mixed-use development is typically a grouping of compatible land uses with interrelated trip-making characteristics. The nature of these land uses allows for some trips to be made among the on-site uses without using the off-site roadway system. The trips captured within the site are called “internal trips”. Typical internal trip captures are among retail, residential, and office land uses. Compared to the total number of trips generated by similar, stand-alone sites, part of the trips generated by a mixed-use development are kept internal to the site and have the net effect of reducing new vehicle trips being added to the surrounding transportation network.

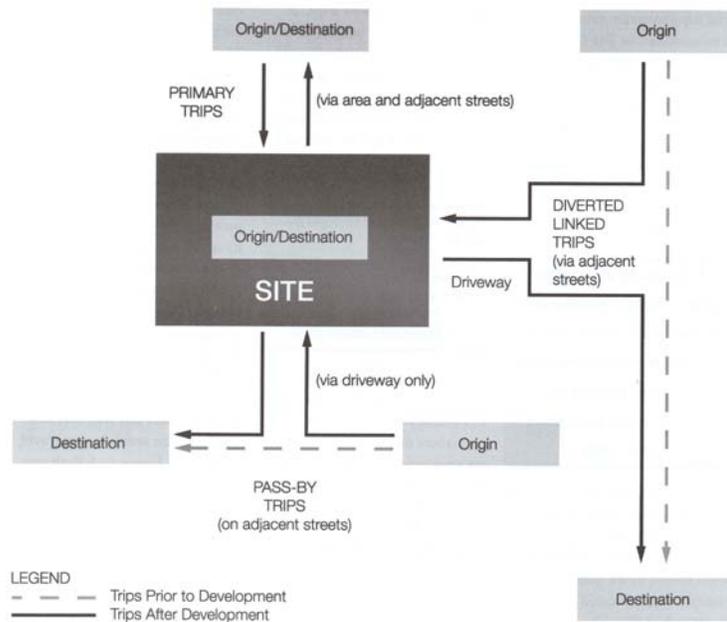


An internal capture rate is generally defined as the percentage reduction of trips applicable to the trip generation estimates for individual land uses within a mixed-use development. The *Trip Generation Handbook, 2nd Edition*, published by the Institute of Transportation Engineers, provides unconstrained internal capture rates for the following three major types of land uses: retail, residential and office.

The NJMC encourages mixed-use development by allowing for a TDF reduction for internal trips in accordance with the District Transportation Plan Rules at N.J.A.C. 19:7-5.2.

3.2 Non-primary Travel (Pass-by & Diverted Trips)

Pass-by trips are made as intermediate stops to a proposed development along the way from an origin to a primary trip destination *without* a route diversion. Diverted trips are made as intermediate stops to a proposed development along the way from an origin to a primary trip destination *with* a route diversion. Non-primary trips are the total of all pass-by and diverted trips to a proposed site. The ITE Trip Generation Handbook, 2nd Edition includes detailed information about pass-by trips and diverted trips.



Most retail-oriented developments such as shopping centers, discount stores, restaurants, banks, service stations, and convenience markets often attract existing motorists in the adjacent transportation network to stop by for additional activities. These non-primary trips would not add new traffic to the surrounding streets. The NJMC acknowledges such concepts and allows for a TDF formula reduction of non-primary trips in accordance with the District Transportation Plan Rules at N.J.A.C. 19:7-5.2.

3.3 High-density Residential Development

As per the District Transportation Plan Rules at N.J.A.C. 19:7-5.3, a high-density residential development has a minimum density of 15 dwelling units per acre. High-density residential developments generally consume less land, which is a scarce resource in urban areas. Such developments are often more cost-effective to construct and maintain, and are more energy-



efficient. An 1989 study in Florida showed that the cost for providing infrastructure per dwelling unit is lower and most efficient for more compact developments. In addition, extending transit services to a site is more cost-effective when the end-user is a high-density residential development, which in turn, promotes the use of public transit.

The NJMC encourages high-density residential development by allowing for a transportation efficiency credit of 3% towards the TDF.

3.4 Transit Oriented Development

A transit oriented development is defined as a development that is located within defined walking distance of a train station or bus stop. Such developments encourage the use of public transit alternatives and have a net effect of reducing vehicle trips in the existing transportation network.



The NJMC encourages transit oriented developments by allowing for a transportation efficiency credit of 15% towards the TDF. As per the District Transportation Plan Rules at N.J.A.C. 19:7-5.3, in order to be eligible for this credit, a proposed development shall be located within an NJMC-designated transit oriented development, or shall be located within the following average walking distances of a train station or bus stop, within one of the corresponding average frequencies for available bus and/or train trips within a peak four-hour period:

Train station:

- One-quarter mile and 30-minute frequency;
- One-half mile and 20-minute frequency; or
- One mile and 10-minute frequency.

Bus stop:

- One-quarter mile and 10-minute frequency serving a minimum of four routes; or
- One-half mile and five-minute frequency serving a minimum of five routes.

Also included are facilities under construction meeting the above criteria.



SECTION 4: ALTERNATIVE TRANSPORTATION ACCESS

4.1 Transit

Efficient public mass transit is the most important element for providing effective multi-modal travel options within the District. As one of the principles of Smart Growth, mass transit accessibility is also the key to reduce pollution and land development impacts due to automobile use. Developments that are automobile-dependent ultimately contribute to land sprawl and decrease the lifespan of any new capacity added by highway construction projects. By improving mass transit accessibility, new developments or redevelopments can reduce their generated automobile trips and lower their impacts on existing infrastructure. The Plan encourages transit-related improvements with a varying credit applied towards the transportation development fee (TDF) charged to the development.



The following measures are considered as transit-related improvements for a new development or redevelopment:

- Public shuttle service to and from commuter and mass transit stations
- Local circulator service
- Extended/revised bus routes
- Increased bus frequency
- Improved/new bus stops

As a rule-of-thumb, when direct shuttle service to and from the site is not available, the development should be located within ½ mile of an existing, or planned and funded, commuter rail, light rail or subway station; or within ¼ mile of one or more stops for two or more public or local circulator lines usable by building occupants.



4.2 Bicycle

As an important component of a multi-modal transportation system, a complete, well-connected bicycle network complements the mass transit system and solves the “last-mile accessibility issue” often faced by transit users. Developments should provide safe, well-paved, and appropriately designated and signed bicycle lanes at strategic locations both onsite and around site frontages. The key to bicycle lane design is the continuation of bicycle lanes. When there are existing bicycle lanes nearby, the new bicycle lanes shall connect to the existing facility.

For commercial or institutional buildings, the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) guidelines recommend providing secure bicycle racks and/or storage within 200 yards of a building entrance, for 5% or more of all peak periods building users, and providing shower and changing facilities in the buildings, or within 200 yards of a building entrance, for 0.5% of full-time equivalent (FTE) occupants. For residential buildings, LEED recommends providing covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.



4.3 Pedestrian

Walkable communities, another important principle of Smart Growth, are another sign of a healthy, compact and clustered community. A walkable community also complements another Smart Growth principle: mixed land uses. Walking is often the last link of most trips. When a safe, well-connected pedestrian network is provided, particularly where public transit is available, people are more likely to give up driving and use other alternatives such as walking and transit.

Developments/redevelopments should provide American Association of State Highway and Transportation Officials (AASHTO) and Americans with Disabilities Act (ADA) compliant sidewalks and



crosswalks at strategic locations both onsite and along site frontages. The key to pedestrian facility design is the continuation of sidewalks. When there are existing sidewalks nearby, the new sidewalk shall connect to the existing facility.

4.4 Carpooling

Carpooling, also known as ride-sharing, is the shared use of a car by the driver and one or more passengers, usually for commuting to work. People who carpool use private cars, or a jointly hired vehicle, for private shared journeys. The vehicle is not used in a general public transport capacity such as in carsharing, share taxis, or taxicabs. By reducing the number of cars on the road, carpooling alleviates traffic congestion, reduces the area needed for parking, and in a global perspective, reduces pollution and greenhouse gas emissions. For individuals, carpooling also lowers the cost of travel, as well as stress, from driving.



Strategies that are often used to encourage carpooling include highway HOV (high occupancy vehicle) lanes, central listing facilities, defined pick-up points, preferential parking, and third party rideshare agencies that runs larger carpool programs. To offset the inflexibility arising from accommodating en-route stops or changes to work schedules, larger carpool programs often have a “guaranteed ride home” arrangement available for pool members.



The NJMC encourages carpooling by applying a credit towards the TDF when new developments provide preferential parking for carpoolers. Within the District, the NJMC is also supportive of the carpool program run by Meadowlink Commuter Services, a third party non-profit agency, which promotes carpooling initiatives.

4.5 Carsharing

Carsharing is a type of car rental where people rent cars for short periods of time, often by the hour. To access the pool vehicles, carsharing users often need to register and establish a payment mechanism with an organization that runs the program within a certain service area. The organization renting the cars may be a commercial business,



public agency, cooperative, or ad hoc grouping. Vehicle locations are distributed throughout the service area and often located for access near public transit. The reservation, pickup and return of pool vehicles are usually all self-service.

Carsharing is attractive to customers who make only occasional use of a vehicle, as well as others who would like occasional access to a vehicle of a different type than their own vehicle. Carsharing is an alternative to owning a car in densely populated areas where transit, walking, and bicycling is readily available and a car is only needed occasionally. By replacing private automobiles with shared ones, carsharing can help lower private car ownership, and reduce traffic congestion, green house emissions, and the demand for parking spaces. Additionally, the cost of carsharing is directly associated with the amount of hours or miles that the user drives and provides a cost incentive to drive less.

Within the District, Meadowlink Commuter Services provides an EZ Ride Carshare program. Details regarding the program can be found on the website of EZ Ride at: <http://www.ezride.org/>



SECTION 5: SITE DESIGN TECHNIQUES

5.1 Shared Parking

Shared parking means that a parking facility is jointly utilized among different buildings and facilities. This is most successful when buildings and facilities have different peak parking characteristics that vary by time of day, day of week, and/or season of year, or when they share patrons so motorists park at one facility and walk to multiple destinations. For example, an office building can share parking with a restaurant or bar, since peak parking demand for offices occurs during weekdays, and on weekend evenings for restaurants and bars.

Shared parking increases the utilization of parking facilities and decreases the total number of spaces required relative to the total number of spaces needed for each separate land use. As a result, allowing for shared parking arrangements may



significantly reduce the amount of land devoted to parking and, in turn, create more opportunities for creative site planning, open space, and landscaping. However, in order to implement an effective shared parking plan, there is a considerable amount of planning needed to determine the appropriate number of parking spaces under shared parking arrangements.

The NJMC allows for effective shared parking arrangements proposed by developments. The NJMC District Zoning Regulations at N.J.A.C. 19:4-8:2 provide detailed requirements for shared parking.

5.2 Preferential Parking

Preferential parking is a program for providing specific parking spaces for carpools, vanpools, and/or carsharing vehicles. By reserving close-in, secure, or otherwise preferable parking spaces for high-occupancy, fuel efficient, and carsharing vehicles, preferential parking provides incentives for drivers of single-occupancy vehicles to explore alternative travel modes.



The NJMC encourages preferential parking by providing a direct financial incentive in the form of TDF credits. The District Transportation Plan Rules at N.J.A.C. 19:7-5:3(c) elaborate how such credit is available to developments that provide preferential parking.



5.3 Unbundled Parking

Unbundled parking is a program where the cost of parking spaces is separated from the rent or purchase price of residential units. An alternative practice is for development projects to provide rebates to households who own fewer or no vehicles and will not use their allotted parking spaces.

Traditionally, the cost of parking spaces is bundled into the rent or purchase price for residential and commercial units, regardless of automobile ownership. This results in inflated rents or purchase price and does not provide incentives to reduce parking



demand. Unbundled parking involves separating the cost of parking from the rent payment or purchase price and more equitably allocates the parking cost only to those who utilize the parking spaces. Such a practice encourages the use of alternative transportation modes, reduces parking demand, and eventually helps to reduce the number of automobiles on the roads.

The NJMC encourages unbundled parking by providing a direct financial incentive in the form of TDF credits. The District Transportation Plan Rules at N.J.A.C. 19:7-5:3(c) explain how such credit is available to developments that provide unbundled parking.

5.4 Cash-out Parking

Cash-out parking is a program that provides payment to employees who agree to surrender the use of an on-site parking space. When employees opt for a cash payment to use transit or other alternative modes, employers will likely reduce the total number of vehicular trips their employees make to work. According to a study conducted by the Victoria Transport Policy Institute, Canada, such financial incentives typically

reduce automobile travel by 10-30%, depending on the value of the incentive and various other factors.

However, the effectiveness of a cash-out program typically depends on the availability of transit and other alternative modes and the availability, or lack thereof, of free and unregulated parking supplies where employees could park after taking the cash out rather than utilizing an alternative mode of travel.



The NJMC encourages cash-out parking by providing a direct financial incentive in the form of TDF credits. The District Transportation Plan Rules at N.J.A.C. 19:7-5:3(c) explain how such credit is available to developments/redevelopments that provide cash-out parking.

SECTION 6: REFERENCES

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