



3. Problem Statement, Purpose and Need, Goals and Objectives

3.1 Problem Statement

Based on the conclusions of the previously completed *2006 Nassau Hub Major Investment Study* (MIS) and the current review of pertinent data and trends summarized in Chapter 2, Nassau County has determined that a number of key, pervasive transportation and related problems exist within the Study Area. These problems stem from current and projected roadway congestion; the lack of frequent, direct and convenient transit service; and large-lot, dispersed development patterns that encourage auto trips and contribute to environmental degradation. These problems limit the County's ability to grow, capitalize on economic development opportunities, and preserve the high quality suburban lifestyle that residents and businesses have come to expect.

The following four overarching problems have been identified.

(1) Traffic congestion is currently pervasive and recurrent at many locations within the Study Area, making it difficult to travel to, from and within the Study Area.

The Study Area contains a diverse mix of uses ranging from employment centers to retail, residential, recreation, and entertainment destinations, all of which generate high levels of traffic on the roadway network. Currently, roadways throughout the Study Area are severely congested, exacerbating travel to and from destinations within the Study Area and through the Study Area. The issues described below relate to existing and future congestion as well as the inability to implement viable roadway capacity expansions.

- *Severe congestion currently exists at numerous locations.*

Congestion often occurs within the Study Area during the morning peak period and from midday through the late afternoon/early evening peak period. Several area roadways also experience high levels of traffic volume and congestion on the weekends. Numerous locations along the main traffic routes through the Study Area are frequently congested, most notably where major east-west and north-south roadways intersect, such as at the intersection of Old Country Road and Glen Cove Road/Clinton Road. Eleven of 27 intersections considered in the Study Area and their key feeder routes operate at overall levels of service (LOS) E or F during the weekday PM peak hour. An additional 10 intersections operate at LOS D, which is considered to be marginally acceptable and, in some cases, include individual traffic movements operating at LOS E or F.

- *Major roadway choke points have been expanded to their limits.*

Many of the critical roadway locations in the Study Area have been widened, signal timing and cycle lengths have been maximized, and capacity improvements have been introduced over the years with little remaining opportunity to further improve traffic flow. Due to the magnitude of traffic volumes and/or the limited availability of remaining right-of-way, further capacity improvements are not practical at many Study Area intersections that have already reached their physical limits. Roadway widening is not an adequate long-term solution to the Study Area's congestion and mobility problems.

- *Congestion is projected to increase in the future.*

Population and employment within the Study Area will continue to grow over the next two decades with an attendant increase in the number of trips to, from and within the Study Area. Even without



major new development initiatives or redevelopment projects, congestion and vehicle traffic within the Study Area would increase as a result of the typical increase in background traffic each year. Assuming a conservative background traffic growth rate of ½ percent per year, already congested intersections and roadway segments will worsen in the future.

- *Economic development initiatives within the Study Area will increase congestion.*

The implementation of any large economic development projects in the Study Area that predominantly rely on auto access will potentially increase this congestion even more. Severely congested roadways will degrade significantly and traffic may divert from these roadways to currently less congested, lower-order roadways. Conditions on these lower-order roads would then, also, likely deteriorate. The existing transportation system, which is already burdened by current travel demands, cannot adequately sustain future increases in automobile trips without engendering severe levels of congestion.

- *Land use patterns and the existing road network configuration limit choices for accessing Study Area destinations.*

Traffic congestion is further exacerbated by the area's disjointed land use pattern. Residential neighborhoods, retail stores, and commercial areas are generally separated by major roadways or are in areas with very limited transit access. Additionally, the dispersed large-lot land uses found in portions of the Study Area disrupt the street grid, making it difficult to travel between uses on foot, by public transit, or even by automobile. Since the roadway network is influenced by the area's land use pattern, travel routes through and within the Study Area are circuitous and inefficient.

(2) Transit service within the Study Area does not adequately serve trips to, from and within the Study Area.

Transit service to the Study Area is provided via Nassau Inter County Express (NICE) Bus and Long Island Rail Road (LIRR) commuter rail service. LIRR service is not well-suited to address intra-Study Area transit needs, as its service is primarily oriented to east-west, Manhattan-bound travel; the rail lines are located at the periphery of the Study Area; rail stations connect few attractions within the Study Area; rail service operates infrequently at most times to be an effective option in the Study Area; and a number of stations are skipped by express service during peak hours. There is no service between the Study Area and the south shore or any meaningful north-south rail service. Some north-south bus lines serve multiple Study Area destinations, but none directly links areas north and south of the Study Area. Due to these factors, transfers between transit vehicles are required to complete a large share of transit trips to/from Study Area destinations. Transit network challenges within the Study Area are as follows.

- *Transit accessibility to Study Area destinations is limited by the uncoordinated nature of the various bus routes and their connection to the LIRR system.*

The Study Area includes two intermodal transit facilities and one bus transfer facility. Their operations are not fully coordinated to enhance overall Study Area access or circulation. These facilities have become the end-point for many bus routes as they first enter the Study Area, forcing many transit users to transfer to another bus to reach Study Area destinations. In addition, most bus routes within the Study Area do not follow a common path between common points, fragmenting service and reducing effective headways.



- *There is a lack of direct LIRR service to many major Study Area destinations.*

Since the LIRR stations are located on the Study Area's periphery, most activity centers in the Study Area are not within acceptable walking distance of existing rail service. With little direct service to activity centers, rail transit trips often require a transfer to another mode to reach Study Area destinations. LIRR lines directly serve the downtowns of the Villages of Hempstead, Mineola, Westbury and Garden City, which originally developed around the LIRR stations. Newer retail, commercial, and recreation development has sprung up beyond their reach over the past 50 years. Most of the vacant and low-density properties that are likely locations for future development are also not within convenient distance of the LIRR.

- *The Study Area currently lacks a fast, coordinated and efficient distribution system to/from the LIRR stations along the Study Area's edges.*

The LIRR's potential to enhance the Study Area as a regional attraction is dependent on the presence of a frequent, reliable distribution system to deliver its customers to Study Area destinations that are beyond walking distance. At present, rail and bus schedules are not fully coordinated for trips to/from the Study Area, resulting in extended transfer wait times and long trips for transit users. Prior efforts at dedicated feeder/circulators have lacked customer-convenient attributes, such as frequent headways and quick schedule connections.

- *Infrequent service levels during off-peak periods and in the reverse-peak direction limit transit access to major destinations within the Study Area.*

LIRR service is oriented for peak-period commute trips to and from Manhattan. As such, reverse peak and off-peak service to stations within the Study Area is not prioritized due to the high demand for service to and from Manhattan, thereby limiting travel options at certain times of the day. Additionally, only six of the 27 bus routes serving the Study Area offer peak and off-peak service levels that would be attractive to discretionary riders. The balance has only limited amounts of service available, particularly during off-peak and reverse-peak periods, creating long wait times for single transit-vehicle trips and very long wait times for trips requiring a transfer. For travel to many of the Study Area's activity centers (e.g., Hofstra University, Nassau Community College, Roosevelt Field, Nassau Veterans Memorial Coliseum, etc.), which attract people during off-peak hours (evenings and on weekends), the reduced availability of transit service at these times creates a disincentive for using transit.

- *Gaps in transit service limit access to the Study Area.*

There are large segments of Nassau County that have either no transit service to the Study Area, or services that are so inconvenient as to deter all but those with no other travel option. Nearly the entire County north of Jericho Turnpike falls into this category. The entire southeast quadrant of the County either lacks direct transit connectivity to the Study Area (most bus service is oriented to Hicksville) or has infrequent and geographically distant service. This discourages transit use for the large population in these areas and exacerbates traffic congestion in the Study Area. The LIRR cannot tap the Study Area-bound travel market from the populous south shore (from The Village of Lynbrook to southwest Suffolk) due to the absence of coordinated connecting bus service from its stations. The LIRR Babylon branch bisects the south shore, offering service attributes (frequent peak and reverse-peak service and at least half-hourly service for 18 hours each day) that could make transit a viable option for Study Area-bound travel. The one true north shore-to-south shore transit service in the County

(Route N25) is one of the most heavily used bus routes in the County, but its routing bypasses the Study Area.

(3) Dispersed and disjointed land use patterns within the Study Area limit transit service and increase reliance on auto travel.

Contemporary development patterns within the Study Area and County as a whole have been geared primarily toward automobile-based travel. These automobile-dependent land use patterns are characterized by the dispersion of uses (i.e., single-use residential, retail, office and industrial developments), wide arterial highways and a predominance of large parking lots.

- *The ability to pursue more transit-friendly economic development opportunities is constrained by the limited transit choices within the Study Area.*

Nassau County's economic growth is not projected to be as robust compared to other counties in the New York Metropolitan Transportation Council (NYMTC) region, and new investments are needed to support sustainable development. The lack of transportation options and increasing traffic congestion in the Study Area are discouraging businesses from locating or expanding there. If current development patterns continue and transportation problems remain unaddressed, the economic vitality of the Study Area and the County as a whole will be further constrained from meeting their full economic potential in the future.

National development and redevelopment trends are shifting away from automobile-dependent land use patterns toward mixed-use and higher-density developments. Through an approved development plan, the Village of Hempstead is advancing a 26-acre, mixed-use, transit-oriented development in its downtown, and the Village of Westbury has recently redeveloped its downtown. While both of these areas are within walking distance of LIRR stations, there are considerable additional opportunities for redevelopment of the Study Area that are not currently well-served by transit. These include the planned redevelopment of the Nassau Veterans Memorial Coliseum and the associated redevelopment of the former Mitchel Field where the Town of Hempstead has adopted a mixed-use zoning district. The County has selected developers for both projects and redevelopment plans are being advanced.

- *Transit infrastructure is insufficient to support the Study Area's transition from automobile-dependent to transit-friendly development patterns.*

Nassau County has adopted a set of broadly defined Complete Streets Guidelines, and is currently working to add greater specificity to the guidelines. A number of municipalities within the Study Area, including the Town of Hempstead and the Village of Westbury, are adopting plans and policies that support sustainable and transit-friendly development. The framework for these redevelopment initiatives focuses on the concepts of mixed-use and denser development and improved connectivity. Major proposed and pending developments within the Study Area, such as the Village of Hempstead's North Main Street project and the redevelopment of the Nassau Veterans Memorial Coliseum site, will most likely consist of a mix of residential, retail and/or recreational uses.

The limited reach of stations, corridors and other transit infrastructure will constrain the creation of synergies among the developments, uses and users. For these developments to reach their full economic development potential, they will need to be complemented by a more targeted transit network that is better positioned to address current and future needs. New investments in transit will be needed to support these higher-density, mixed-use developments and their residents, employees and visitors, while maintaining a balance with the County's quality-of-life ideals and values. Recently



completed examples of transit-oriented development in the Village of Mineola include the 'Winston' and 'Churchill' residential complexes consisting of 275 units and 36 units, respectively, on and adjacent to Old Country Road and within walking distance to the Mineola Intermodal Center.

- *Land use patterns in large areas of the Study Area are not transit-supportive.*

The development of the Study Area, like much of the County, has been predominantly auto-dependent. The current land use patterns within the Study Area were established years after the closing of Roosevelt Field, a former airfield, and Mitchel Field, a former Air Force base. When these airfields were redeveloped, distance between land uses was considered desirable; therefore, redevelopment of these areas was typified by large parcels with single uses (e.g., big box retail, recreational areas) that were isolated from each other by surface parking and roadways. The development pattern in the Roosevelt Field and Mitchel Field areas is dominated by commercial buildings that are separated by vast parking lots. This development pattern of low-density land use and a reliance on the automobile as the primary means of transportation resulted in high levels of traffic congestion. As described in Section 2.3.2, the Study Area contains large areas of off-street parking. Much of this surface parking supply is used for special event or seasonal use and is not needed to meet regular demand. There is little shared parking. Typically, retail, industrial, and office developments in the Study Area are set back from roadways and encircled by expansive surface parking areas. This existing development pattern and the physical barriers presented by these parking areas contribute to further reliance on auto travel within the Study Area.

- *Development patterns and inconsistent pedestrian infrastructure discourage walking.*

The orientation of and distance between buildings in the Study Area discourages walking and reinforces the automobile as the most viable means of travel. Single-use developments are bounded by wide, multiple-lane roadways with limited pedestrian facilities. Buildings are set back from their access roadways and are surrounded by surface parking lots. Separated and disconnected single-use development effectively hinders the ability to create convenient pedestrian and bicycle connections between Study Area destinations. Uses may be separated by fences or have limited pedestrian access points or require long walks through surface parking lots. This auto-oriented development pattern discourages pedestrian access because of long walking distances between activity centers, lack of pedestrian access points and linkages, and unsafe or unattractive pedestrian environments. While portions of the Study Area, particularly west of Clinton Road, are characterized by a grid of short, walkable blocks, few connections are available to major destinations such as Roosevelt Field or Nassau Community College.

- (4) The lack of transit choices within the Study Area limits the County's ability to positively affect environmental quality and sustainability and degrades the area's livability.**

Nassau County is characterized by suburban development patterns that emphasize the separation of land uses. This reinforces driving as the dominant mode of transportation and creates dependence on automobile travel for most trips. Over time, this type of development has led to roadway congestion, encouraged sprawling consumption of land, and deprioritized the historic suburban centers within the Study Area. This development pattern has negatively affected quality of life and is no longer sustainable.



- *Air quality in the County and wider NYMTC region is currently in non-attainment, impacting livability and public health.*

Nassau County, like much of the New York/New Jersey metropolitan region, has been designated as a non-attainment area for ozone and a maintenance area for particulate matter (PM_{2.5}) and carbon monoxide (CO).¹ Particulate matter is emitted into the atmosphere from multiple sources, including vehicular emissions. The prevalence of automobile usage and resulting roadway congestion has contributed to air quality problems in Nassau County. Additionally, exposure to poor air quality has the potential to result in public health impacts. The continued growth in auto trips to, through and within the Study Area will diminish the County's ability to move toward air quality conformity.

- *The County is within an Environmental Protection Agency (EPA)-designated Sole Source Aquifer and the reliance on auto travel and the land use patterns that support it may limit the County's ability to meet EPA water quality standards.*

The Nassau-Suffolk Sole Source Aquifer system underlies the Study Area and Nassau County. Due to the prevalence of auto travel and historically dispersed land use patterns that have been favorable to the automobile, the Study Area contains large areas of impervious surface comprising primarily parking lots and roadways. Runoff from these surfaces contributes to water quality degradation. New development strategies are needed to reduce water quality impacts within the County. These include creating higher density, compact, and walkable developments. Future developments oriented toward transit, as well as the inclusion of impervious surface treatments, would help improve water quality within the Study Area. Attempts to alleviate roadway congestion by expanding capacity will only increase impervious surfaces and reduce recharge to the sole source aquifer, thereby resulting in less ground water being available to the region.

- *Severe traffic congestion results in travel delays, degraded noise conditions, and traffic accidents that diminish the quality of life for County residents, businesses, and visitors.*

These issues limit the County's ability to grow, capitalize on economic development opportunities, and ensure the continued maintenance of the high quality suburban lifestyle expected by County residents and businesses. The County has instituted several environmental policies, including Healthy Nassau, a multi-dimensional environmental campaign to improve the County's environment and sustain the health and quality of life of its residents. New investments in transit will be needed to enhance quality of life for County residents and businesses by decreasing the negative impacts associated with reliance on auto travel within the Study Area.

3.2 Purpose of the Alternatives Analysis

The purpose of the Alternatives Analysis (AA) is to identify a solution that would help increase mobility to, from and within the Study Area by improving transit services and providing additional travel options other than via the automobile. Additionally, in order to improve mobility to, from, and within the Study Area, the AA examined and proposes potential improvements to key linkages between the Study Area and Regional Study Area. This AA report has been prepared following the conclusion of a number of technical studies documented through various Technical Memoranda, which are noted in Appendix C of the this report. All technical findings documented in this report are based on the aforementioned Technical Memoranda.

¹ USEPA Green Book Nonattainment Areas for Criteria Pollutants, <http://epa.gov/airquality/greenbook/>, 2014.



The Nassau Hub Study, in response to identified problems, is intended to achieve the following purposes:

- Improve public transit service to, from, and within the severely congested Study Area by providing increased transit capacity and faster, convenient access to and from major Nassau County employment and activity centers for residents, employees and visitors.
- Enhance regional connectivity to and from the Study Area by expanding and interconnecting local transit services with LIRR in Nassau County and improve intermodal transit hubs where rail, bus, auto, bicycle and pedestrian links meet.
- Increase transit ridership by expanding transit services and facilities in an area with ever-increasing travel demand that can no longer be met by existing or proposed roadway facilities.
- Mitigate congestion through the provision of attractive, efficient travel-mode options.
- Support transportation solutions that will be instrumental in improving the economic vitality and continuing redevelopment of the Study Area.
- Improve mobility for residents, employees, and visitors to employment, educational, recreational, medical and retail centers.
- Improve regional air quality by reducing or slowing the growth in auto emissions.
- Support local and regional land use plans and facilitate Study Area municipalities' efforts to direct redevelopment opportunities in transit-oriented development.

Improved transit in the Study Area is consistent with the goals and objectives defined for prior studies of transportation in the Study Area and responds to needs identified in the Regional Transportation Plan (RTP) Update adopted September 2013 by NYMTC. The next RTP Update is scheduled for adoption September 2017 by NYMTC; Nassau County will continue to coordinate with NYMTC for consistency between the Study and the goals enumerated in the next RTP Update and to include Study findings into the fiscally constrained portion of the RTP.

3.3 Needs in the Study Area

Based on the existing conditions and trends in the Study Area, a series of transportation and related issues were identified, as described in Section 3.1, with the following corresponding needs identified:

- **Support transit-oriented economic development opportunities and land use plans.** Nassau County and many of the Study Area's municipalities have identified land use and development goals that support greater transit services. New transit service will not only support land use plans but also make future developments more viable and ultimately make all new proposed developments more successful.
- **Expand transportation system capacity.** There is a need to expand capacity in the transportation network to accommodate existing demand and projected growth.
- **Increase travel choices.** Modal options for travel to, from and within the Study Area are limited to automobiles and local bus service operating within the congested traffic network. Additional travel options will improve the ability to pursue more transit-friendly economic development opportunities within the Study Area.



- **Provide more reliable travel times.** Congested traffic conditions create longer transit travel times, thereby reducing the reliability of the existing transit services. A reduction in traffic congestion by improving alternative travel modes to the automobile will improve travel time reliability for all modes.
- **Improve transit access and connectivity.** There is a need for improved transit access and connectivity to the Study Area from the west and south and for new services from the east and north.
- **Better integrate LIRR service into local and regional transit options.** The primary means of access between LIRR stations and activity centers in the Study Area is the automobile. There is not a frequent, reliable distribution system to deliver LIRR customers to Study Area locations that are beyond walking distance. Connectivity and accessibility would be greatly enhanced if transit service were enhanced between activity centers and LIRR stations.
- **Provide better off-peak and reverse-peak trip-making options.** The high concentration of medical, retail, and event/recreation-related facilities in the Study Area results in a need to provide high levels of off-peak and reverse-peak transit service.
- **Improve operational efficiency.** Increasingly scarce operating resources require more efficient transit services.
- **Improve environmental quality.** More efficient growth and sustainable development patterns are necessary to reduce impacts to the local and global environment.

3.4 Goals and Objectives

The following goals and objectives were defined based on the problems and associated needs identified in the Study Area and the purpose of the Study. The goals and objectives identified in this section were used to develop the evaluation criteria and evaluation measures used to screen the Study alternatives, ultimately leading to the selection of a Locally Preferred Alternative (LPA).

GOAL: Develop transit improvements that will provide additional realistic and practical travel options to, from and within the Study Area and help to mitigate congestion on roadways in a cost-effective manner.

OBJECTIVES:

- Reduce travel time and costs associated with congestion.
- Reduce dependence on the use of automobiles for trips to, from and within the Study Area.
- Increase public transportation options and use as a means of access to and from the Study Area.
- Increase public transportation options and use as a means of circulation within the Study Area.
- Develop a public transportation alternative that will attract new riders.
- Identify a transit alternative that is capable of growing and adapting to changes in the demand for service.
- Develop a transit alternative that takes advantage of the use of existing transportation infrastructure, where appropriate.



- Develop a transit alternative that encourages use of alternate transportation modes (walking, bicycling, carpool and other travel demand management methods) to travel by auto, where practicable.

GOAL: Develop transit improvements that will enhance mobility to, from and within the Study Area in a cost-effective manner.

OBJECTIVES:

- Utilize a high quality, attractive transit vehicle technology.
- Develop a transit alternative that provides travel time savings compared to existing options.
- Develop a seamless, convenient and integrated regional transportation system.
- Develop transportation alternatives that attract transit-dependent and non-transit-dependent riders.
- Provide improved transit access to, from and within the Study Area.
- Locate transit to enhance the economic competitiveness of the Study Area, creating new job opportunities and supporting existing businesses.
- Expand the geographical capture area for Study Area employment centers by providing access to workers who are transit-dependent.
- Develop an alternative that will have a capital cost that is consistent with anticipated financial resources for construction.
- Develop an alternative that will have an operating and maintenance cost that can feasibly be funded annually with state and local resources.
- Develop an alternative that is capable of being funded for construction through traditional or alternative/innovative funding mechanisms.
- Explore alternatives that can be phased incrementally, consistent with available funding.

GOAL: Develop transit improvements that encourage the development of sustainable, transit-friendly land use patterns and support economic development activities.

OBJECTIVES:

- Develop a transit alternative that can be supported by local land use plans and development policies.
- Use transit to enable more compact land uses that could better support a transit-oriented development scenario.
- Use transit to promote mixed-use development as a means of discouraging auto-dependent, single-use patterns of development.
- Encourage redevelopment of underutilized parcels.
- Use transit to better serve existing activity centers.
- Accommodate proposed land uses and react to anticipated development growth in the Study Area in the future.



- Support development with a mix of uses that remain vibrant throughout the day and night.
- Address volume, availability and economics for the use of land for parking in the Study Area.
- Provide improved access to open space resources.
- Encourage uses at street level that will support a lively streetscape on a pedestrian scale with diverse activity in the vicinity of station areas.

GOAL: Develop transit improvements that enhance quality of life and minimize adverse environmental impact.

OBJECTIVES:

- Use transit as part of a regional approach to address congestion-related air quality concerns and regional air quality conformity.
- Use transit as part of a regional approach to mitigate greenhouse gas emissions.
- Develop a transit alternative that mitigates overall energy consumption for trip making.
- Incorporate alternative fuels and energy sources into the transit alternative, as appropriate.
- Coordinate transit infrastructure and services with land use to promote sustainability and livability and enhance quality of life.

GOAL: Develop transit improvements that support and complement transit-friendly and economically sustainable parking strategies.

OBJECTIVES:

- Encourage reduced parking ratios for developments that can be accessed via transit.
- Encourage the reduction, consolidation and relocation of surface and structured parking from transit-accessible sites for the purpose of encouraging land uses that are more economically vibrant and sustainable.
- Encourage transit use and mitigate roadway congestion by creating regional parking facilities at major transit centers and other appropriate locations.