

15. Locally Preferred Alternative

The modern streetcar Locally Preferred Alternative (LPA) recommended in Section 14 is proposed to be implemented in phases. This section describes the LPA, the proposed phased implementation strategy, and the Initial Operating Segment (IOS) that has been identified for first-phase implementation.

15.1 Phased LPA Implementation Strategy

The alignment and modern streetcar technology comprising the LPA are recommended as the *long-term vision* for transit improvement in the Nassau Hub. The LPA's full alignment between the Village of Hempstead and downtown Village of Mineola is shown on Figure 15-1, with its key characteristics summarized in Table 15-1.

The LPA was selected because it would best satisfy the Study's goals and objectives, address the purpose and need for transit improvement, and alleviate the underlying transportation- and economic development-related issues identified in the Study Area. However, recognizing existing financial constraints to construction of the full LPA and reflecting the desire to generate ridership growth over time, an IOS has been defined as a financially feasible *first phase of the LPA for near-term implementation*. The IOS is also proposed as an early phase to provide a reasonable timeframe for some large-scale development proposals, which are currently in flux along segments of the LPA corridor, to become better defined. These developments are anticipated to generate additional demand for travel in the Hub area that could be accommodated with later implementation of the LPA's second phase. Therefore, the IOS would initially be advanced with the intent to build ridership and brand the system, with the remainder of the LPA occurring at some point in the future as planned development comes on line and funding becomes available.

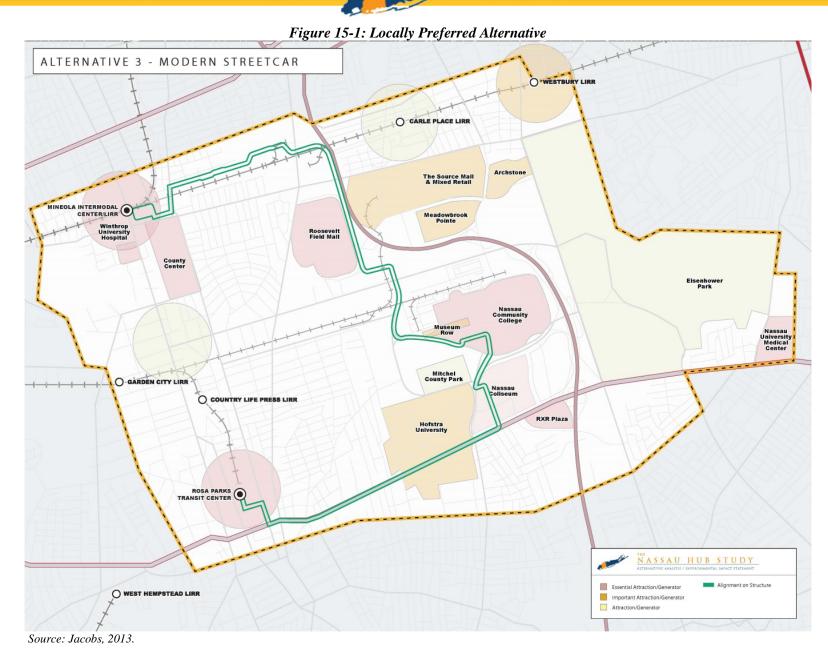
The IOS is proposed to operate initially using premium bus technology, similar to bus rapid transit (BRT) vehicles. When proposed developments are completed and funding is identified and available, the balance of the LPA alignment would be constructed and BRT/premium bus vehicles would be replaced with modern streetcars. The design of the physical features of the IOS would permit conversion to modern streetcar in the future. The IOS would incorporate various physical elements of the overall LPA so that the infrastructure developed for the IOS would remain functional and be integral to the full LPA.

Table 15-1: Summary of LPA's Key Characteristics

Route Miles	6.5 miles
Stations	14 stations
Vehicles	10 trains
Travel Time – Mineola to Hempstead	28.1 minutes
Headway (peak & off-peak) ¹	10 minutes (peak); 15 (off-peak)
Ridership (daily boardings)	7,000
Annual Ridership	2,100,000
Order-of-magnitude Capital Cost (2012 dollars)	\$376 M
Order-of-magnitude Annual Operating and Maintenance Cost (2012 dollars)	\$8.9 M

Source: Jacobs, 2013.

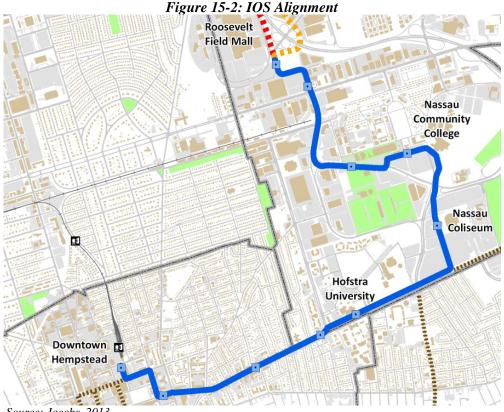
Note 1: Peak periods for providing the proposed transit service would be on weekdays from 7:00 AM to 8:59 AM and 4:00 PM to 5:59 PM. Off-peak periods of service would be on weekdays from 5:30 AM to 6:59 AM, 9:00 AM to 3:59 PM and 6:00 PM to 12:00 AM and all day on Saturdays, Sundays, and holidays.





15.2 Initial Operating Segment Implementation

Table 15-2 summarizes the main characteristics of the IOS, which would connect the Village of Hempstead and the southern edge of Roosevelt Field (Figure 15-2).



Source: Jacobs, 2013.

The IOS design would seek to maximize elements that would continue to function with later implementation of subsequent phase(s) of the LPA and minimize elements that would need to be modified as the full LPA is designed and constructed. Elements of the IOS that would be anticipated to continue to function with implementation of the full LPA include:

- Right-of-Way All right-of-way proposed for use with the IOS would be designed to readily
 accommodate implementation of the full LPA at a later date. This would include the horizontal and
 vertical geometry, vehicle envelope/clearances and utility relocation.
- Stations Stations would be designed and constructed to accommodate the near-term need with the
 IOS while being easily adaptable to accommodate the modern streetcar application in the future with
 the full LPA.
- **Guideway** Elements of the guideway would be designed and constructed so as not to require significant modification for conversion to modern streetcar technology. Adequate provisions would be made for future power and signal needs, as well as utility protection.
- **Systems** Traffic control infrastructure, including transit signal priority, would be an integral component of the IOS and retained for the subsequent full LPA.



Table 15-2: Summary of IOS' Key Characteristics

Route Miles	4 miles
Stations	10 stations
Vehicles	6 buses
Travel Time	18 minutes
Headway (peak & off-peak)	10 minutes (peak); 15 (off-peak)
Ridership (daily boardings)	3,100-5,200
Annual Ridership	868,000-1,456,000
Order-of-magnitude Capital Cost (2012 dollars)	\$94.5 M
Order-of-magnitude Annual Operating and Maintenance Cost (2012 dollars)	\$3.4 M

Source: Jacobs, 2013.

Note: The higher end of the ranges presented for ridership (daily boardings) and annual ridership represents the ridership potential if pending and proposed land use and development possibilities occur in the IOS corridor that would generate additional demand.

15.2.1 IOS Alignment and Stations

The entire alignment of the IOS would be at-grade. After departing the Roosevelt Field Bus Facility, the IOS would comprise street-running in mixed traffic and potentially dedicated right-of-way through the Roosevelt Field parking lot, and then follow exclusive right-of-way using the edge of the retention basin along Ring Road East and the north and south sides of South Street, where another station is proposed. The alignment would continue in dedicated right-of-way on the east and west sides of Quentin Roosevelt Boulevard.

The alignment would turn onto Charles Lindbergh Boulevard on exclusive right-of-way and continue to Museum Row and the Nassau Community College West Campus, using the campus parking lots. Stations are proposed at locations that would serve Museum Row and Nassau Community College. The alignment would continue south past the college's Physical Education Complex, using dedicated right-of-way through the parking lots and vacant land, crossing Charles Lindbergh Boulevard to access the Nassau Veterans Memorial Coliseum. New traffic signals would be placed on Quentin Roosevelt Boulevard and Charles Lindbergh Boulevard. In sections of Charles Lindbergh Boulevard where an exclusive right-of-way is proposed, existing jogging/bike paths would be shifted or relocated to accommodate an exclusive transit right-of-way.

The alignment would continue southbound, traveling in dedicated right-of-way through the Nassau Veterans Memorial Coliseum property to Hempstead Turnpike. A station is proposed for the Nassau Veterans Memorial Coliseum property.

On Hempstead Turnpike, the exclusive right-of-way would run along the north side of the roadway in the landscaped strip between the shoulder lane and the jogging/bicycle path. Proposed stations would be located east of Hofstra Boulevard and east of Oak Street.

At Oak Street, the alignment would transition from operating on the north side of Hempstead Turnpike to operating in a dedicated median lane. The dedicated median bus lane would be controlled with transit signal priority. The dedicated center lane would transition to the eastbound and westbound mixed-traffic curb lanes to serve stations at Warner Avenue and Clinton Street.

At Washington Street, the alignment would turn north, operating in mixed traffic to Jackson Street. The alignment would turn west on Jackson Street and terminate at the Rosa Parks–Hempstead Transit Center.

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¹ The proposed dedicated median lane on Hempstead Turnpike is the subject of ongoing coordination meetings with the New York State Department of Transportation's (NYSDOT) Region 2 Office.



The IOS would have 10 stations (Table 15-3), with an average station spacing of 0.5 mile.

Table 15-3: IOS Stations

Station	Location/Cross Streets	Attractors/Generators Served
Roosevelt Field	Existing bus facility south of Roosevelt	Roosevelt Field
	Field	
South Street	South Street and Stewart Avenue	Neighborhood stop
Railroad Avenue	Railroad Avenue and Charles	Neighborhood stop
	Lindbergh Boulevard	
Nassau Community	Earle Ovington Boulevard (North-	Nassau Community College campus,
College-Museum Row	South Road) and Student Union	Museum Row
	Service Road	
Nassau Veterans Memorial	West of Earle Ovington Boulevard	Nassau Veterans Memorial Coliseum
Coliseum		and/or other development on the
		property
Hofstra University	Hempstead Turnpike and Hofstra	Hofstra University campus
	Boulevard	
Oak Street	Hempstead Turnpike and Oak Street	Hofstra University campus
Warner Avenue	Fulton Avenue and Warner Avenue	Neighborhood stop
Clinton Street	Fulton Avenue and Clinton Street	Neighborhood stop
Rosa Parks-Hempstead	Jackson Street and Station Plaza	Downtown Village of Hempstead,
Transit Center		NICE Bus, LIRR Hempstead Station

Source: Jacobs, 2013.

15.2.2 IOS Operating Plan

The IOS would operate vehicles in revenue service from 5:30 AM to midnight, 7 days per week. The proposed service frequencies are every 10 minutes during the weekday peak periods and every 15 minutes during weekday off-peak periods and on weekends. Table 15-4 presents the proposed service frequencies by day-of-week and time-of-day.

Table 15-4: IOS Service Frequencies

Day of Week	Time of Day	Time Period	Frequency (minutes)
	Early AM	5:30 AM to 6:59 AM	15
	AM Peak	7:00 AM to 8:59 AM	10
Monday to Friday	Midday	9:00 AM to 3:59 PM	15
	PM Peak	4:00 PM to 5:59 PM	10
	Evening	6:00 PM to 12:00 AM	15
Saturday, Sunday, Holidays	All Day	5:30 AM to 12:00 AM	15

Source: Jacobs, 2013.

The IOS route's end-to-end run time, including a 20-second dwell time at stations and traffic signal priority, would be 17.8 minutes (Table 15-5).

A fleet size of six buses would be needed to meet the vehicle requirements for peak-period service with 10-minute headways between buses and a 15 percent spare-vehicle ratio.



Table 15-5: IOS Run Times

From Passenger Station	To Passenger Station	Distance (Miles)	Station-to-Station Run Time Without Dwell Time (Minutes)	End-to-End Run Time With Dwell Time (Minutes)
Rosa Parks–Hempstead Transit Center	Clinton Street	0.4	2.1	_
Clinton Street	Warner Avenue	0.5	2.0	_
Warner Avenue	Oak Street	0.4	1.9	_
Oak Street	Hofstra University	0.3	1.1	_
Hofstra University	Nassau Veterans Memorial Coliseum	0.7	1.9	_
Nassau Veterans Memorial Coliseum	Nassau Community College-Museum Row	0.5	1.5	_
Nassau Community College - Museum Row	Railroad Avenue	0.4	1.3	_
Railroad Avenue	South Street	0.6	1.9	_
South Street	Roosevelt Field	0.2	1.5	_
Subtotals		4.0	15.1	_
Dwell Time		_	_	2.7
Totals		4.0	_	17.8

Source: Jacobs, 2013.

15.2.3 IOS Capital Costs

The order-of-magnitude capital cost estimate for the IOS is \$94.7 million. The details of the capital costs for the IOS are presented in Table 15-6.

Table 15-6: IOS Order-of-Magnitude Capital Costs (2012 dollars)

Cost Category	IOS Cost
Guideway	\$16,631,000
Stations, Stops, Terminals, Intermodal Centers	\$4,200,000
Yards, Shops, Administration Buildings	\$0
Sitework & Special Conditions	\$15,651,000
Systems	\$12,105,000
Right-of-Way & Land	\$11,250,000
Vehicles	\$6,600,000
Professional Services	\$15,713,000
SUBTOTAL	\$82,151,000
Contingency	\$12,353,000
Finance Charges	TBD
TOTAL PROJECT COST	\$94,474,000

Source: Jacobs, 2013.

15.2.4 IOS Operating and Maintenance Costs

Based on the proposed operating plan, operating parameters (Table 15-7) and order-of-magnitude operating and maintenance (O&M) costs were estimated.



Table 15-7: IOS Operating Parameters

Operating Parameter	IOS
Alignment Length (route miles)	4
Average Operating Speed (miles per hour)	11.2
End-to-End One-Way Run Time (minutes)	17.8
Recovery Time at Each End for Peak Period (minutes)	5
Recovery Time at Each End for Off-peak Period (minutes)	10
Weekday Peak Headways (minutes)	10
Peak Buses in Service	5
Spare Ratio (15% of peak vehicle requirement)	1
Total Fleet Size	6
Total Number of Stations	10
Total Revenue Vehicle Hours (annual)	28,107
Total Revenue Vehicle Miles (annual)	232,080

Source: Jacobs, 2013.

Based on the IOS service plan and operating parameters, order-of-magnitude annual O&M costs are estimated to be \$3.3 million (2012 dollars).

15.3 Financial Plan

The following section describes a preliminary financial plan that creates a framework to meet the objectives of the Study to achieve regional transportation investments with supportive land use strategies. The financial plan supports the Nassau Hub IOS capital and operating costs by aligning funding sources and uses to implement the proposed project. While Nassau County is committed to funding and implementing the transportation improvements recommended through the Study, this report recognizes that funding and financing considerations are preliminary and dynamic at this stage of the Study. The IOS costs are as follows:

- Capital Total capital cost to construct the IOS is estimated to be approximately \$94.7 million (2012 dollars). The project sponsor, Nassau County, is planning for approximately one-half, or 50 percent, of the capital costs to be funded via grants from the Federal Transit Administration (FTA) and/or other granting agencies. Therefore, about \$48 million of the total capital funding would need to be funded through local and non-federal sources.
- Operation and Maintenance Annual costs to operate and maintain the IOS are estimated to total about \$3.3 million (2012 dollars). Potential funding sources for consideration are Nassau County Statewide Mass Transportation Operating Assistance (STOA), NYSDOT STOA, FTA operating assistance (5307 funding), parking revenue, fare revenue and, in a few locations, developer contribution.

There are several federal, state, and local public funding sources that could support the design and construction of the IOS. The estimate of percentage shares provided in Table 15-8 exceeds 100 percent, reflecting different arrangements and alternative funding packages that may be used; this allows for flexibility in funding scenarios, which will continue to be refined and updated as the Study moves through the environmental review phase.

Financing mechanisms are leveraging techniques that can be used to generate upfront capital for a BRT/premium bus investment, but are predicated upon a stable revenue stream being identified to pay a return on invested capital. As described below, the Transportation Infrastructure Finance and Innovation



Act (TIFIA) can be a valuable financing mechanism because of its low interest rates, lengthy terms, no local match requirement, and a front-end grace period allowing time for revenues to "ramp up."

Table 15-8: Potential Funding and Financing Sources and Uses

		Estimate of Percentage Share
Source of Potential Funds	Use of Funds by Cost Element	of Total Costs
U.S. Department of Transportation (USDOT), Transportation Investment Generating Economic Recovery (TIGER) Grants A very competitive and discretionary grant source of funding, which requires upwards of a 40% local match and project sponsor's readiness to move forward. In 2013, nearly \$500 million in TIGER grants were awarded for 52 projects encompassing public transportation, roadway and intermodal facilities. The TIGER Grant Program is not currently funded past September 2014, but is contained in MAP-21 reauthorization and the federal Administration's Grow America Act. TIGER works for large, multi-modal projects that are not suitable for other federal funding sources.	Design and construction of: Guideway Stations, stops, terminals, intermodal centers Systems/traffic signal prioritization (TSP) Vehicles Limited property acquisition	20%
Federal Transit Administration (FTA) - Section 5309, Small Starts Grants This program funds capacity-improvement projects such as corridor-based BRT projects that are less than \$75 million in grant request to the FTA and the total net capital cost is less than \$250 million. Federal Transit Administration (FTA) - Section 5307, Formula Grants This program provides formula funding for use to support transit capital expenses, although up to 10% of the allocation may be used to assist with the operating costs of ADA-mandated complementary para-transit services. 1% of funding allocations to be spent on safety and security measures, and 1% spent on transit enhancements. Funding for this program is	Design, construction or purchase of: Guideway Stations, stops, terminals, intermodal centers Systems/TSP Vehicles Operations Vehicles Station enhancements	50% (less than \$75 million of total capital cost is mandated) 10% (applied after IOS achieves revenue service)
approximately \$3.6 billion annually. Statutory provisions: 49 U.S.C.A. § 5307 Federal Highway Administration (FHWA) – Highway Program Investments	 Guideway/roadway rehabilitation 	5%



Table 15-8: Potential Funding and Financing Sources and Uses (continued)

Table 15-8: Potential Funding and Financing Sources and Uses (continued)			
Source of Potential Funds	Use of Funds by Cost Element	Estimate of Percentage Share of Total Costs	
FHWA Flexible Funds (Congestion Mitigation/Air Quality [CMAQ]) Provides funding for projects and programs in air quality nonattainment and maintenance areas for ozone, carbon monoxide, and particulate matter), which reduce transportation-related emissions. FHWA Flexible Funds (Surface Transportation Program [STP]) Provides flexible funding that may be used by states and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. FHWA Flexible Funds (Transportation Alternatives) Provides funding for programs and projects defined as transportation alternatives, including on- and offroad pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility.	 Multi-modal elements of project Bicycle and pedestrian elements Station/stop and appurtenances 	5%	
New York State/Long Island Regional Economic Development Council (LIREDC) Provides grants via the Consolidated Funding Application (CFA)	GuidewayStations, stops, terminals, intermodal centers.	20%	
New York State Department of Transportation (NYSDOT) Program funds that could be used to support reconstruction of Hempstead Turnpike for use by BRT/premium bus system.	 Guideway and road rehabilitation Limited right-of-way acquisition 	10%	
Nassau County General Fund and Capital Program Funding and finance from general fund revenue	GuidewayStations, stops, terminals, intermodal centers	20%	
program and/or issuance of revenue bonds and/or capital construction bonds.	VehiclesRight-of-way acquisitionO&M	50% of O&M cost	
Joint Development/Private Developer Contribution Developer's monetary contribution or project-specific design/construction integration of station/stop, plaza, landscape, or other parts of the project that have direct transit nexus and mutual benefit to proposed development building or public/private physical infrastructure. These arrangements could reduce public-sector costs that would be otherwise expended.	 Stations/stops Landscaping Plaza O&M 	5% of capital cost 5% of O&M cost	
Advertising and Naming Rights Kiosk advertising; bus vehicle advertising; and naming rights of notable station/stops at entertainment or institutional complexes.	Stations/stopsIntermodal centersPlazas	1%	



Table 15-8: Potential Funding and Financing Sources and Uses (continued)

Table 15-8: Potential Funding and	Tunc	incing Sources and Oses (comi	
			Estimate of
	_		Percentage Share
Source of Potential Funds	l	Use of Funds by Cost Element	of Total Costs
New York State Energy Research and	•	Vehicles (hybrid; energy	< 1%
Development Authority (NYSERDA)		saving)	
NYSERDA has a regular cycle of grant programs for	•	Design and planning	
clean fuel under its Cleaner Greener Communities			
Program (CNG; hybrid; or battery) for bus vehicles			
and any other component reducing greenhouse gases.			
NYSERDA awarded (2013) Suffolk County a \$1.5-			
million grant under its Cleaner Greener program to			
establish a BRT demonstration corridor.			
Rockefeller Foundation	-	Planning and stakeholder	< 1%
The Rockefeller Foundation provides funding for		outreach/communication	
transformative projects that meet the foundation's			
core goals, one of which is to transform cities and			
regions. The Foundation has funded dozens of			
projects in the United States to improve public			
transportation. Of note, the Foundation recently			
awarded \$1.2 million to support BRT systems in			
Boston, Chicago, Nashville and Pittsburgh. The			
grants support research/planning studies,			
communications and community outreach to engage			
stakeholders on the benefits of BRT.			
Value Capture – Special Assessment District	•	Guideway	5% of capital cost
(SAD)	-	Stations	25% of O&M cost
Special levy on parcels within 1/4 mile of BRT or	•	O&M	
streetcar route. Apportionment of costs and			
assessment fee on annual basis is used to offset			
capital costs and pay for ongoing operation and			
maintenance.			
Value Capture – Tax Increment Financing (TIF)	•	Guideway	5% of capital cost
TIF is a public financing tool that allows local	-	Stations	25% of O&M cost
government to borrow to invest in public	-	O&M	
infrastructure and other public improvements by			
capturing the future incremental real property taxes			
generated by new development, transit-oriented			
development, or entertainment venues, etc.			
TIF has not been used for BRT or light rail project			
funding in New York.			
Note: Most likely either TIF or SAD – not both – can			
be implemented. These are very new financing			
mechanisms that have received support at state,			
regional and local level but have yet to be			
implemented for a transportation investment in the			
region.			
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Table 15-8: Potential Funding and Financing Sources and Uses (continued)

	thancing bources and eses (conti	Estimate of
		Percentage Share
Source of Potential Funds	Use of Funds by Cost Element	of Total Costs
Transportation Infrastructure Finance and	 Guideway 	50% credit
Innovation Act (TIFIA)	Stations, stops, terminals,	assistance
TIFIA loans are negotiated between the USDOT and	intermodal centers.	
the borrower and are based on the project's	Systems/TSP	
economics and characteristics. Interest rates are at	Vehicles	
the rate that the U.S. Treasury borrows funds.		
Amount of the loan cannot exceed 50% of total		
eligible project costs, and is limited to projects with		
total costs of at least \$50 million. TIFIA offers credit		
assistance in the form of lower financing costs and		
flexible payment terms.		
Payment in Lieu of Taxes (PILOTS)	Guideway	5% of capital cost
A PILOT Increment Financing (PIF) structure allows	Stations	25% of O&M cost
for diversion of monies which are otherwise payable	■ O&M	
to a taxing jurisdiction into a fund that is used either		
to offset the developer's project costs, repay project		
financing, or hold in a fund to pay for infrastructure		
improvements. The arrangement requires the		
cooperation of the taxing jurisdictions, and an entity		
which can provide a real property tax exemption such		
as an Industrial Development Authority (IDA) and the		
lender. The developer must participate in tax credit		
program such as NY Empire Zone Program.		

Source: AECOM, 2014.

As the Study advances, Nassau County will undertake steps to advance and refine the preliminary financial plan, including:

- Pre-application sessions with FTA, the USDOT, NYSDOT and other potential funding partners;
- Potential partnerships with other agencies and stakeholder operators to gain better access and improve competitive position to funding sources;
- Identification of potential joint development partner(s) to bring private capital for construction of station/stops and other infrastructure;
- Evaluation of the utilization of the Nassau County capital program; public grants; value-capture techniques and associated enabling authority; and
- Development of an approach with organizational and stakeholder partners to implement the financial plan.



15.4 Next Steps

The Nassau Hub Study AA was completed to identify the most appropriate transportation improvement for advancement in the Study Area and thereby select the LPA, and to satisfy FTA requirements for a project to be eligible for federal funds. Nassau County intends to pursue Federal Small Starts funds, among other sources, for IOS implementation. Given that, the next steps in the financial planning component of the Study include:

- Refining the project costs as the LPA moves through the environmental-review phase of project planning;
- Developing a detailed cash flow analysis;
- Working with pertinent federal, state and local entities to refine funding avenues; and
- Refining the overall financial plans as the IOS advances through design.