2019
Village of Lindenhurst
Downtown Walkability Improvement Study

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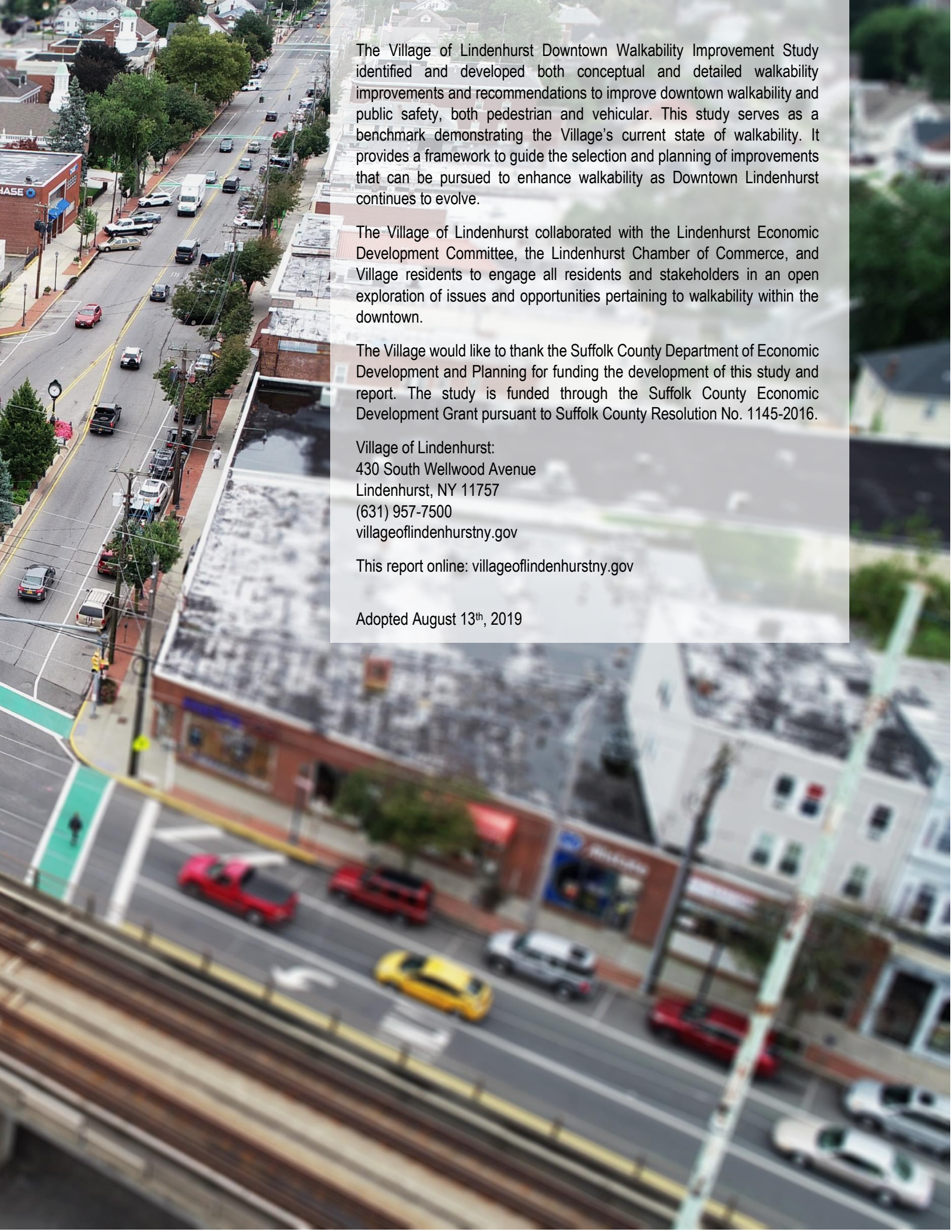
GPI
Many Talents One Firm

LINDY WALKS



The Village of Lindenhurst Downtown Walkability Improvement Study identified and developed both conceptual and detailed walkability improvements and recommendations to improve downtown walkability and public safety, both pedestrian and vehicular. This study serves as a benchmark demonstrating the Village's current state of walkability. It provides a framework to guide the selection and planning of improvements that can be pursued to enhance walkability as Downtown Lindenhurst continues to evolve.

The Village of Lindenhurst collaborated with the Lindenhurst Economic Development Committee, the Lindenhurst Chamber of Commerce, and Village residents to engage all residents and stakeholders in an open exploration of issues and opportunities pertaining to walkability within the downtown.

The Village would like to thank the Suffolk County Department of Economic Development and Planning for funding the development of this study and report. The study is funded through the Suffolk County Economic Development Grant pursuant to Suffolk County Resolution No. 1145-2016.

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Adopted August 13th, 2019

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INCORPORATED VILLAGE OF LINDENHURST
430 SO. WELLWOOD AVENUE - LINDENHURST, NEW YORK 11757

August 9, 2019

To Whom It May Concern:

On behalf of the Village of Lindenhurst Board of Trustees, I would like to express my support for the Walkability Study completed by Greenman-Pedersen Inc. (GPI) for the Village of Lindenhurst.

The Village of Lindenhurst is focused on creating a vibrant, safe, and thriving downtown. The Village is confident that the suggestions made in the study, such as the addition of bike lanes, increased pedestrian safety, and traffic calming measures, will help to obtain these goals. GPI worked with the Village Board, the Lindenhurst Economic Development Committee, Village Administration, and community members to obtain feedback throughout the process of developing the study.

The Village of Lindenhurst is proud to stand behind the Walkability Study.

Sincerely,

Michael A. Lavorata
Mayor

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INCORPORATED VILLAGE OF LINDENHURST
430 SO. WELLWOOD AVENUE - LINDENHURST, NEW YORK 11757

August 9, 2019

To Whom It May Concern:

In 2016, the Lindenhurst Economic Development Committee (LEDC) was given the task of researching, reviewing and presenting recommendations to the Lindenhurst Village Board on issues of economic growth and the future development of the Village of Lindenhurst. In the early stages, the committee performed surveys, interacted with the Suffolk Planning Commission, reviewed the Regional Planning Associations recommendations for the Village, and really began the conversation for the revitalization of our community. Then in 2017, our County Legislator Kevin McCaffrey, obtained a $200,000 grant for walkability study which would help us lay the foundation for a successful downtown.

Now after Linden-Walks through our downtown with the multiple stakeholders, many meetings with business owners and the LEDC, and time spent researching, we are finally at the conclusion of this great study. The walkability study presented here is a path forward for our community and will be a invaluable tool as we continue to apply for grants to improve our downtown. The LEDC is proud of the great work done by GPI and endorse this document and its findings.

Thank you,

Richard J. Renna

Richard J Renna
Chairperson, LEDC

Acknowledgements

Suffolk County Legislator Kevin McCaffrey

Village of Lindenhurst

Michael A. Lavorata, Mayor
Maryann Weckerle, Deputy Mayor
Joan M. Masterson, Trustee
Patrick M. Pichichero, Trustee
Richard J. Renna, Trustee
Honorable John Bopp, Village Justice
Douglas Madlon, Village Administrator Clerk
Rick Sorrentino, Superintendent of Public Works
Raymond Fais, Public Safety/Emergency Management Coordinator

Lindenhurst Economic Development Committee

Richard J. Renna, Chairperson
Sammy Chu, Committee Member
Marian Conway, Committee Member
Meg Danaher, Committee Member
Robert Sweeney, Committee Member
Katherine McCaffrey, Secretary

Lindenhurst Chamber of Commerce

Lindenhurst Business Improvement District

Consultant Team – Greenman-Pedersen, Inc. (GPI)

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Executive Summary

The Village of Lindenhurst's overarching goal for this walkability improvement study is to inspire change to make downtown Lindenhurst a destination of choice. The Village aims to enhance and revitalize its downtown, further stimulate economic activity and create an inviting vibrant and safe environment.

The present study plays a crucial role in this endeavor as it lays out downtown walkability improvements and strategic recommendations for the Village to implement.

With its call for a downtown walkability improvement study, the Village is pursuing a path that was, until very recently, virtually unthinkable on the car-focused and largely car-dependent Long Island.

This study serves as a benchmark demonstrating the Village's current state of walkability. It provides a framework to guide the selection and planning of improvements that can be pursued to enhance walkability as Downtown Lindenhurst continues to evolve.

While proven to be a cost-effective means to boost economic development, improve public health and generate social and environmental benefits, walking as well as other active transportation modes, such as cycling and public transit are still not fully embraced by many people on the Island. At the same time, walkability improvements can only be successful if supported and embraced by the public.

The development of the downtown walkability improvement study used a participatory planning approach to thoroughly engage residents and stakeholders of the Village of Lindenhurst.

This enabled the members of the Lindenhurst community to share their concerns and offer suggestions via a series of complementary engagement tools. This included downtown walk audits (LindenWalks), public meetings, and a customized online public engagement tool on the study website (lindywalks.net). At public meetings and on the study website, the public had the opportunity to view visualizations of design suggestions for the Lindenhurst downtown and provide valuable feedback.

The walkability improvements for Downtown Lindenhurst focus on six thematic areas:

Walkability Improvement Areas

1. Pedestrian Safety and Infrastructure
2. Cycling Infrastructure
3. The Creation of New Public Space: Village Square Extension
4. Placemaking
5. Parking
6. Downtown Connectivity

All improvements were qualitatively assessed and validated via consultations with stakeholders and decision makers of the Village of Lindenhurst.

An implementation plan shows the expected contributions of the walkability improvements towards achieving the objectives of:

- Creating an attractive and walkable environment;
- Improving multi-modal access and safety;
- Supporting downtown economic development; and
- Supporting the community vision and ability of being implementable by the Village.

The implementation plan lays out the suggested phasing for the walkability improvements distinguishing between short-term (up to 2 years) and mid- to long-term implementations (2+ years). It furthermore discusses potential funding sources for the Village and proposes a framework for the evaluation and update of the walkability study. The study concludes with strategic recommendations that are laid out for the Village to most effectively implement the suggested walkability improvements and make a long-term positive difference for the community and their downtown.

Walkability has become the strategy of municipalities – nationally and internationally – that stand out for their vibrant urban centers and high quality of life. Lindenhurst has taken a leading role among communities on Long Island by pursuing walkability improvements as a primary means of revitalizing its downtown and boost the economic development. The Village has much to gain when it implements the downtown walkability improvement suggestions laid out in this study.

Section 1 Introduction

Lindenhurst has focused much of its economic development efforts on the Village's downtown. With the call for a Downtown Walkability Improvement Study, it is pursuing a path that was – until very recently – virtually unthinkable on the car-focused and largely car-dependent Long Island.

The Village is competing with many communities on Long Island in making their community and especially their downtown an attractive place for people to live and work and businesses to invest in. The Downtown Walkability Improvement Study is an important and, in many ways, unique opportunity to make this happen.

In June 2018, the Village kicked-off a year long process of conducting the 'Village of Lindenhurst Downtown Walkability Improvement Study'. The study aligns with the Village's vision for a vibrant downtown that supports new businesses and adds to community vitality, ensuring that Lindenhurst develops and retains an attractive promising place to live, work, and play.

Figure 1: Study Area for the Downtown Walkability Improvement Study

1.1 Study Objectives and Scope

Overarching Goal and Objectives

The Village's overarching goal for this study is to inspire change to make downtown Lindenhurst a destination of choice. The Village aims to enhance and revitalize its downtown, further stimulate economic activity and recreate an inviting vibrant and safe environment. Important objectives to achieve the Village's vision for its downtown can be grouped under four key complimentary goals.

Key Goals and Objectives

Safety
- Improve public safety
- Improve downtown vehicular flow and pedestrian safety

Health
- Promote a healthy lifestyle and offer healthier commute options

Multi-modality
- Encourage walking as an alternative to automobile use
- Present opportunities for cycling infrastructure
- Establish safe and efficient downtown parking

Accessibility
- Create improved pedestrian access to the downtown
- Connect primary destinations via safe pedestrian and bicycle infrastructure

In order to achieve these goals while appropriately accommodating the community's voice, need for effective community engagement and outreach was recognized, and included as an inclusive task through-out the study.

The Lindenhurst Downtown

The boundaries of the study include the entire central business district of the Village along Wellwood and Hoffman Avenues, and nearby commercial, industrial, residential, and recreational areas, as determined in the 2000 Downtown Business District Analysis, and shown in Figure 1. The boundaries of the study area, approximately 165 acres, are determined to be: N. 4th Street and S. 4th Street to the west, Harrington Avenue, Fremont Street and Charles Street to the north, N. Alleghany Avenue and S. Pennsylvania Avenue to the east, and Gates Avenue and Kent Avenue to the south.

1.2 Planning Approach

The study was laid out to document the state of walkability and other relevant demographic and infrastructure conditions within the downtown area, identifying and stakeholder-validating walkability improvements that incorporate complete streets, pedestrian safety and traffic calming elements, and provide an implementation plan including planning-level cost estimates and implementation time frames.

The planning process that led to the development of the study and the report included multiple tasks that were accomplished within a period of about 12 months. The key tasks conducted in the planning process and their relationships are illustrated in Figure 2.

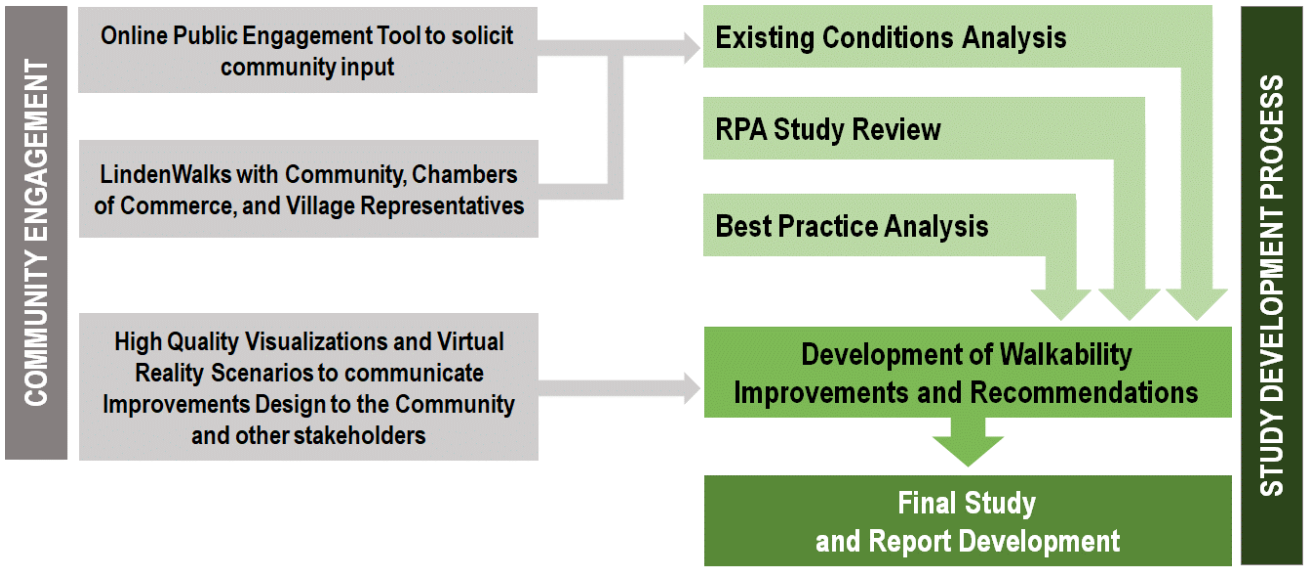


Figure 2: Planning Approach

Community Engagement

To ensure that the study appropriately reflects the community's vision for Lindenhurst's downtown area, the development of the study is supported via a robust stakeholder engagement process. Community input was gathered through LindenWalks – walk audits conducted in the downtown, and a customized online public engagement tool available on lindywalks.net. The downtown Lindenhurst walkability improvement study website also provided visualizations for the preliminary design suggestions.

This ongoing robust community engagement process has provided valuable input on the community's concerns and preferences for Lindenhurst's downtown area. It has also indirectly reflected on community's support and perspective for some of the recommendations outlined in the RPA Downtown Opportunity Analysis. A brief overview of the community engagement process and input is available in Appendix A. Summary of Stakeholder Input

Existing Conditions Analysis

The existing conditions analysis provides an extensive review and assessment of the demographic and socio-economic indicators, the downtown land use, amenities and developments, and the state of mobility in the downtown study area.

RPA Study Review

The Lindenhurst Downtown Opportunity Analysis, completed by Regional Planning Association (RPA) in June 2016, provides a list of recommendations on the revitalization of the Lindenhurst downtown, many of which relate directly to walkability. This task reviews these recommendations in light of new developments, trends and changes over the last two and a half years.

Best Practices Analysis

The best practices analysis provides an overview of best practices pertaining to downtown revitalization and walkability improvements and discusses lessons that can be learned for the development and implementation of the Downtown Walkability Improvement Study. The best practices are presented in areas of placemaking and transformation of public spaces, walking-focused wayfinding and parking management.

Development of Walkability Improvements and Recommendations

Walkability improvements considered for development and evaluation include traffic calming treatments at intersection of Hoffman Avenue and Wellwood Avenue and on Wellwood Avenue, placemaking improvements at public spaces and streets, pedestrian and bike connectivity improvements, parking redesign, and wayfinding / signage improvements. This included an overview of the improvement details, potential benefits, planning and design considerations, and identification of coordination needs, right-of-way or parking impacts.

1.3 Benefits of Walkability Improvements

The benefits of a walkable and bikeable community are greater than commonly realized. Walkable neighborhoods provide health, safety, environmental, social and financial benefits.

Safety

Environments that support physical activity have been shown to be safer in terms of crime rates as well as collisions and injuries. Pedestrian friendly design, including sidewalks, pedestrian signals, refuge islands and better lighting, have been proven to decrease pedestrian-motor vehicle crash rates. [1]

Traffic calming typically reduces crash rates by 47% on major highways through small urban areas, by 19% on corridors in larger suburban areas, and 29% overall. [2]

Public Health

Walking is one of the most common forms of physical recreation and exercise. Walkable/bike-able communities make for healthier residents. Walkability is associated with a decrease in body mass index (BMI) and improved mental health. [3]

Environmental

Shifts from driving to walking can reduce vehicle miles traveled, congestion, and associated pollution emissions. In one study, a 5% increase in walkability was associated with a 6.5% decrease in vehicle miles traveled. This equates to a 5.6% decrease in emissions of oxides of nitrogen. [3]

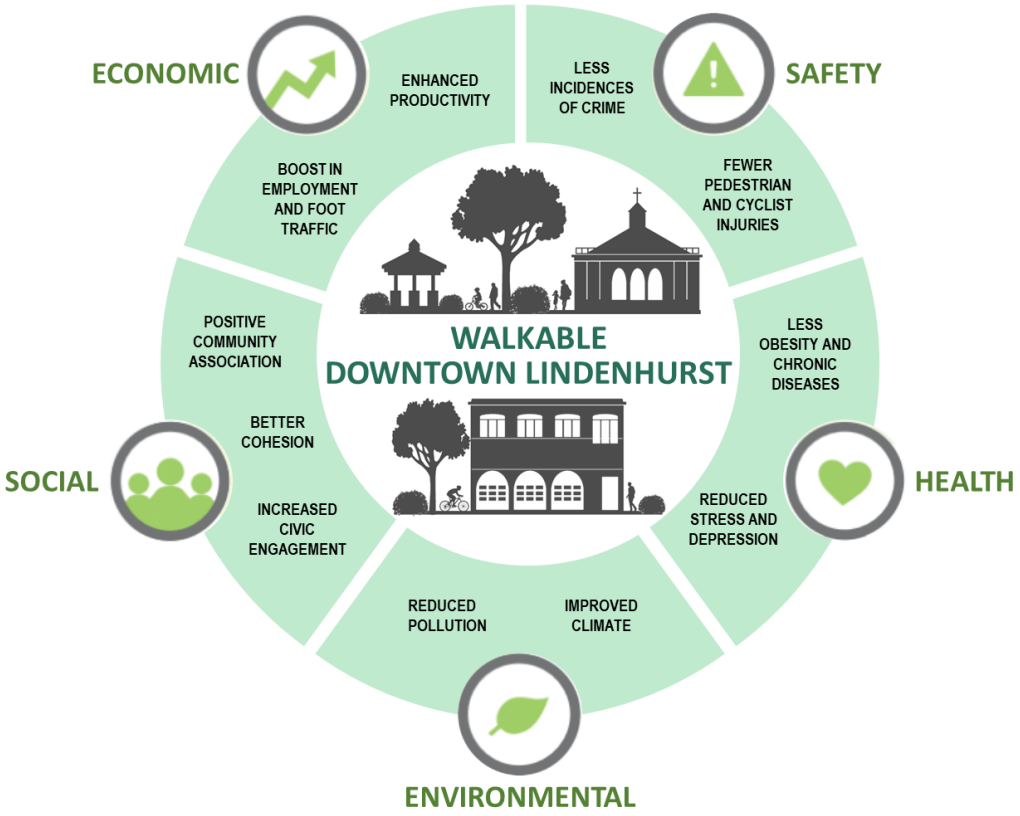


Figure 3: Benefits of Walkability Improvements

Another study determined that the addition of sidewalks to all roadways would lead to a reduction of vehicle miles traveled equal to 183 million miles, resulting in an annual air pollution cost saving of $8 million. [4]

Social

Active environments reinforce communities. They create opportunities for people to meet and interact, give people a greater sense of cohesion and lead people to have more positive attitudes about their neighborhoods. Streets that are attractive, safe and suitable for walking are a key factor in community livability.

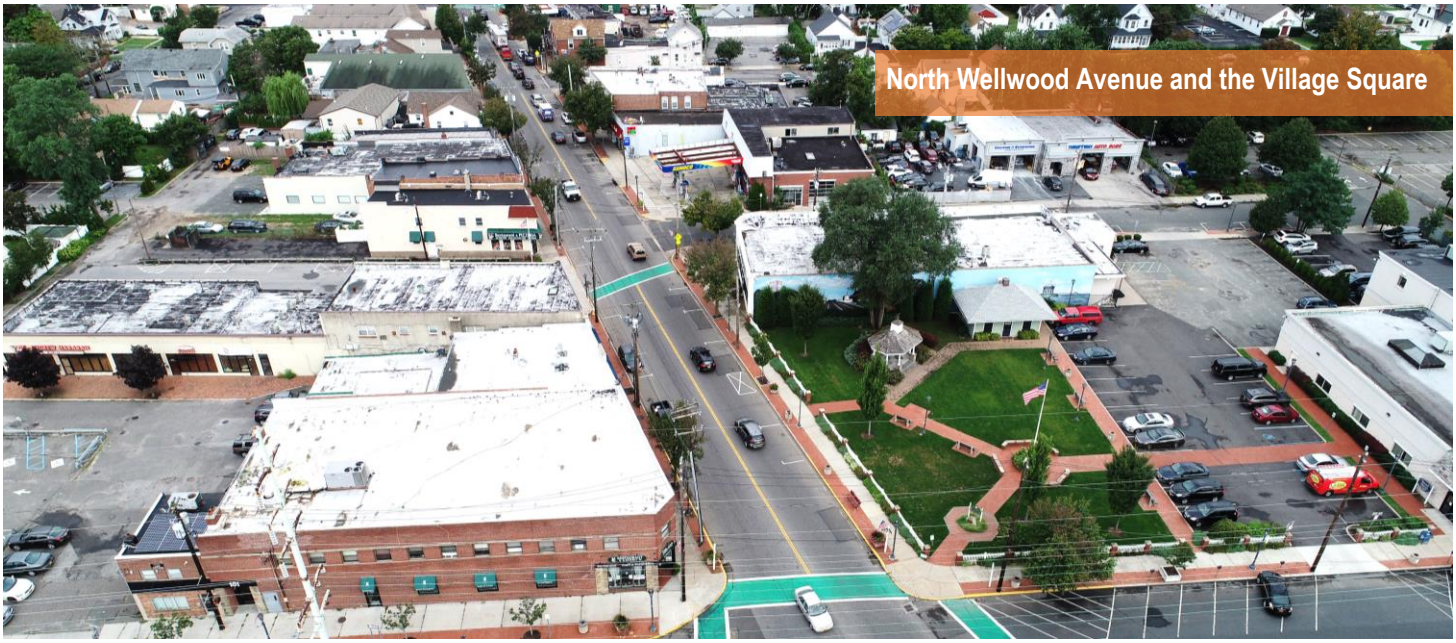
Economic

Higher walkability supports local economic development and is linked to increases in local property values. A study of 15 U.S. cities found homes in more walkable neighborhoods to be worth $4,000 to $34,000 more than those in less walkable neighborhoods. [5]

Another research study found U.S. urban regions with more walkable developments in both city centers and suburbs tend to attract more educated workers and have greater economic productivity than more automobile-dependent cities. [6]

Also, for businesses and restaurants, a more walkable downtown with plenty of shops and restaurants equates to economic benefits, as it has been shown that customers are more likely to stop in multiple stores in a walkable community than in car-centric environments.

East Hoffman Avenue, vacant Waldbaum's site can be seen on the left side.



North Wellwood Avenue and the Village Square

Hoffman-Wellwood Avenues Intersection and South Wellwood Avenue

Section 2 Downtown Today: Existing Conditions Analysis

The existing conditions analysis included three major components: analysis of demographic and socio-economic indicators, profiling the downtown neighborhood and accessing the state of mobility in the downtown study area. These analyses were conducted based on primary data collected through field surveys, secondary data sets available through US Census Bureau, review of relevant past studies / submissions including NYS Downtown Revitalization Initiative Application (2018), Lindenhurst Downtown Opportunity Analysis (2016), Lindenhurst Economic Development Committee - Downtown Survey Summary (2015), Lindenhurst Downtown Business District Analysis (2015), and review of Suffolk County applicable legislation.

2.1 Downtown Demographics

Demographic and socio-economic analysis includes review of census data on population growth, age distribution, housing type, housing ownership and value, household income, poverty levels, employment industry and location, and transportation to work patterns for Village of Lindenhurst residents.

Population

The population of Lindenhurst has been steady over the last several decades, post significant influx of families during the 1940-1960s. The most recent U.S. Census Bureau estimates indicate that the Village has a population of 27,153 residents, which represents minor change (-0.4%) since 2010. [7]

Lindenhurst is one of most densely populated communities in all of Suffolk County with 7,248 persons per square mile, second to North Amityville with 8,559 persons per square mile. In comparison, the Village of Babylon's population density is 4,976 persons per square mile.

The average household in Lindenhurst had 3 persons per household, which matches the Suffolk County average. The population is equally distributed between the sexes, with about 50.1% males and 49.9% females. The population is largely white (79%), followed by Hispanic which accounts to 16% of the population. [7]

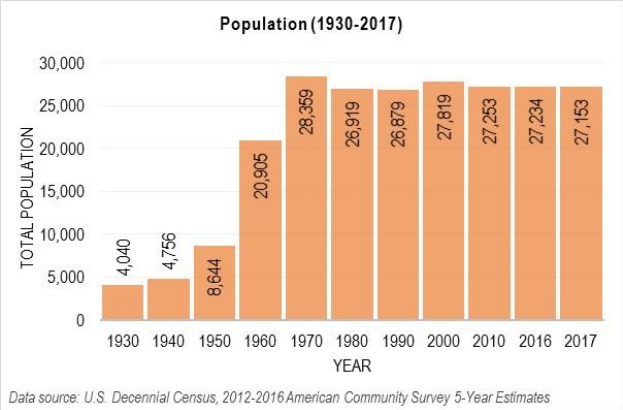


Figure 4: Population (1930-2016)

Figure 5 shows the Village's population age distribution for the year 2016. Lindenhurst's population is aging. The median age decreased between 1950 and 1970, due to the influx of young families. Since then, the median age has slowly continued to increase. It was 40.2 years in 2010 and 42.3 years as per 2012-2016 ACS 5-year estimates.

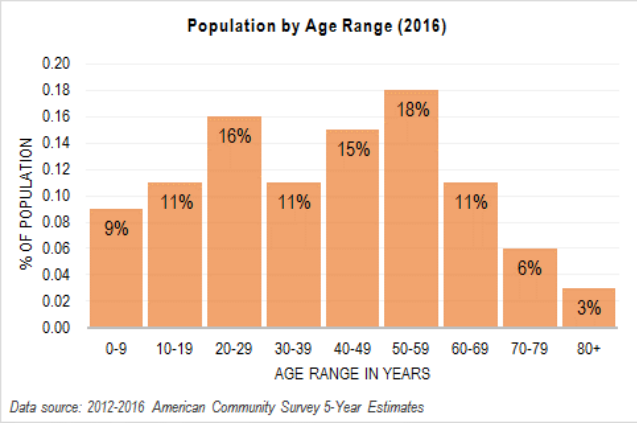


Figure 5: Population by Age Range (2016)

Figure 6 shows the change in population age distribution between the years 2000 and 2016. Lindenhurst's senior population (65 years and over) has grown by approximately 22.8% from 3,083 to 3,786 between 2000 and 2016.

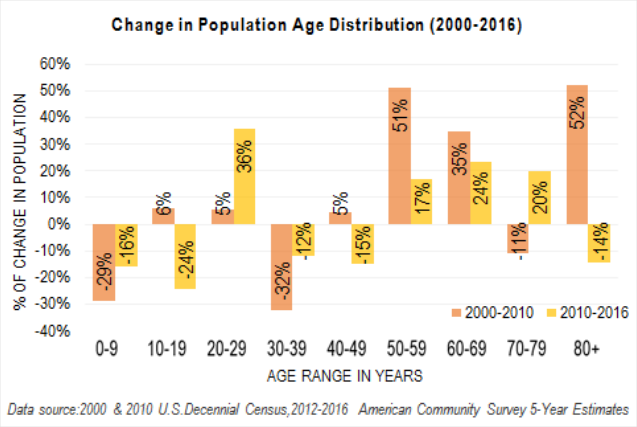


Figure 6: Change in Population Age Distribution (2000-2016)

In 2016, 13.9% of the population was 65 and over, it will continue to grow as baby boomers age and as life expectancy increases.

Housing

The number of housing units in the Village of Lindenhurst is estimated to be about 9,791 [7] and is expected to continue to increase very slowly in the coming years as houses are built on a few remaining vacant lots, and as redevelopment of older existing residences or other buildings may occur.

In terms of housing stock, 79% of Lindenhurst's homes are single-family units with 77% being detached units. There is also a relatively large percentage of 2-family homes comprising about 16.8% of all housing units. [7]

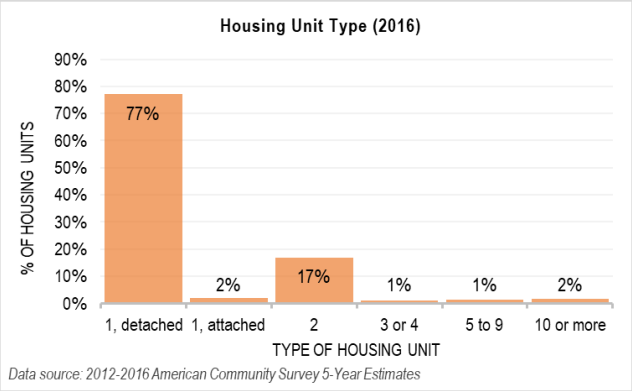


Figure 7: Distribution of Type of Housing Units (2016)

There are 9,791 housing units within the Village of Lindenhurst, of which approximately 92% (9,013 units) of the housing units are occupied. Within these, 75% of the homes are owner occupied and 25% are renter occupied. Vacant houses account for approximately 8% of the housing units, the rate being lower compared to Suffolk County (14.1%) and New York State (11.3%). [7]

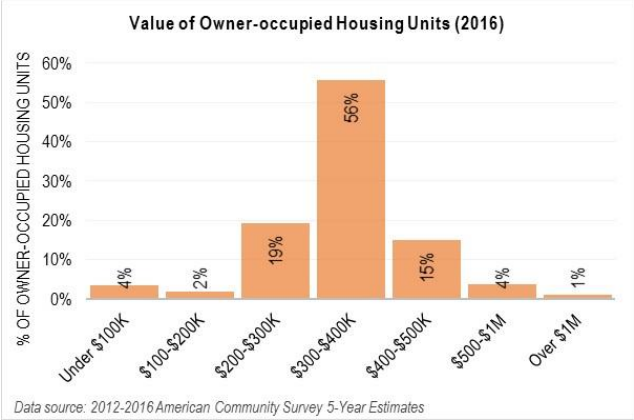


Figure 8: Value of Owner-occupied Housing Units (2016)

The median value of owner-occupied housing units in the Village is $345,700, which is about 20% higher when compared to median value in NYS and 10.5% below the Suffolk County median value of $386,400 for owner-occupied housing unit.

Vehicle Ownership

More than two-thirds of the occupied housing units had two or more vehicles in 2016. About 6.5% of the occupied housing units had no vehicle availability – which amounts to over 580 housing units in the Village. [7]

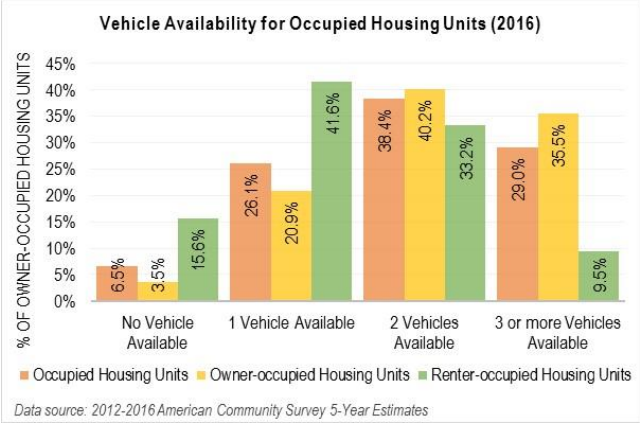


Figure 9: Vehicle Availability for Occupied Housing Units (2016)

Income and Poverty

Lindenhurst residents earn more on average annually compared to overall New York State residents, with a median household income of $83,594, about 12% lower than Suffolk County and 1.4 times the amount in New York State.

Fewer Lindenhurst residents live below the poverty line (6.4%) compared to Suffolk County (6.8%) and New York State (14.1%). [7]

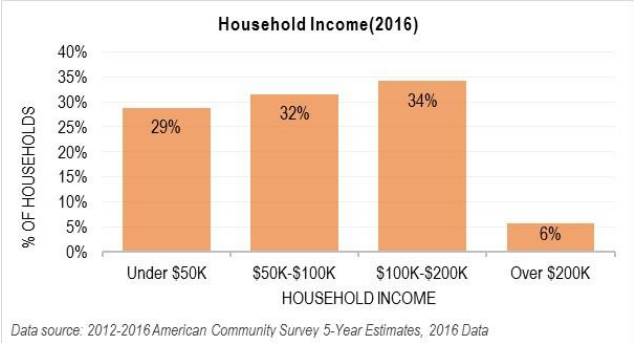


Figure 10: Median Household Income (2016)

The Village includes a diverse range of individual wage earnings. About 29% of Lindenhurst's households have an income of less than $50,000, while the income of about 32% of the households are in the range of $50K to $100K. Approximately 34% of Lindenhurst households fall in in the range of $100K to $200K.

When compared to Suffolk County, about 26% of County's households have an income of less than $50,000, while the income of about 26% of the households are in the range of $50K to $100K. Approximately 33% of County's households fall in in the range of $100K to $200K. About 15% of the households in the County have an income over $200K, compared to only 6% of the households in Lindenhurst.

Employment and Transportation to Work

About 6.6% of the Lindenhurst residents work within the Village, and nearly all residents work somewhere within New York State. 51.3% of the Village residents work in Suffolk County and about 24.8% in Nassau County. Nearly one out of eight Lindenhurst residents travel off Long Island and beyond the New York City boundaries to their workplace.

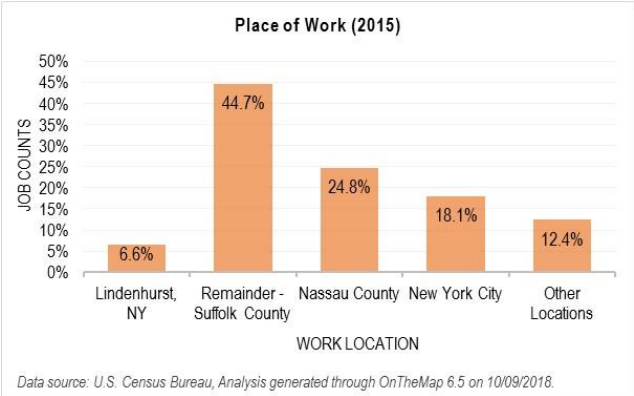


Figure 11: Place of Work for Lindenhurst Residents (2015)

Driving is the most dominant means of transportation to work for the 11,384 workers in the Village. Over three quarters of these workers, aged 16 years and over, drive alone to work and about 11% use public transit – primarily the railroad (10%) for their journey to work.

About 300+ workers, amounting to 2.2% of the total Village workers, walked to their place of employment and only 10 workers (0.1% of the workers) used bicycle as their primary mode of transportation to work. [8]

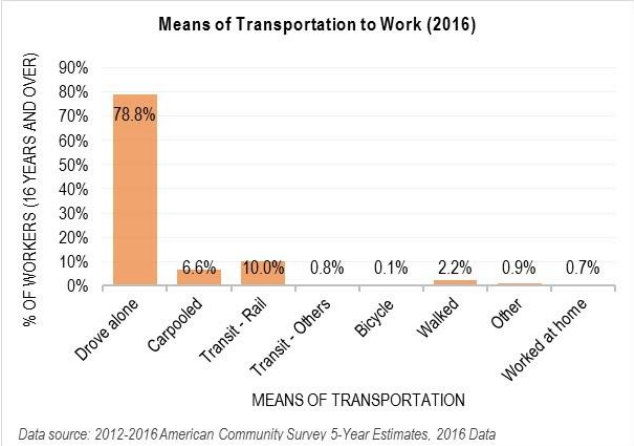


Figure 12: Means of Transportation to Work (2016)

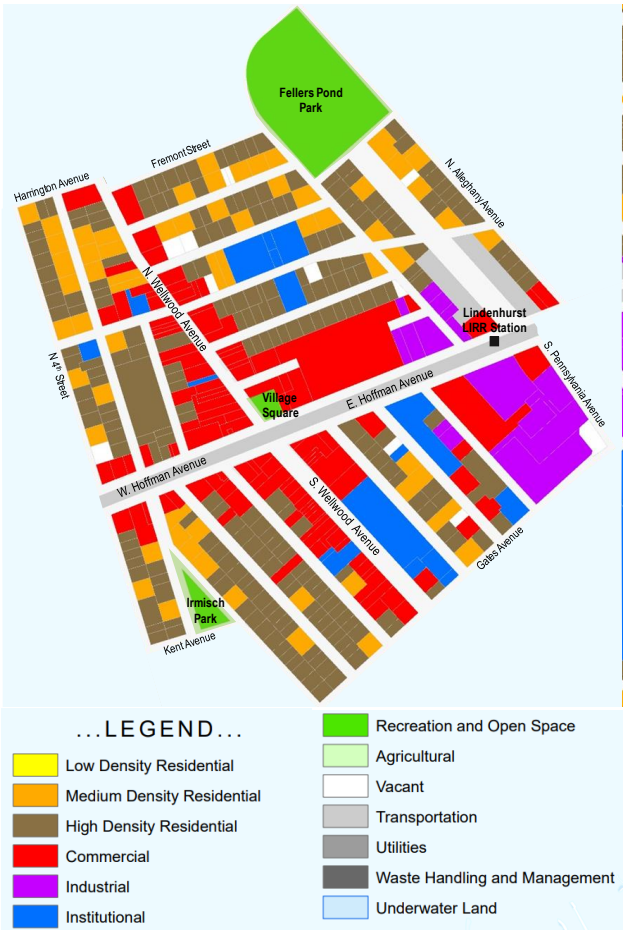
While workers residing in the community supported a diverse array of industries, Construction, Retail Trade, Administration & Support, Waste Management and Remediation, Educational Services, and Accommodation and Food Services compose approximately 60% of all industries represented. Educational Services and Retail Trade are the top two industry sectors by employment with 17% and 12% of the workers employed respectively

2.2 Land Use and Market Conditions

Review of land use and market conditions includes analysis on land use distribution, store front uses, and vacancy rates, inventory and mapping of neighborhood amenities identified by field surveys and future developments learnt through stakeholder discussions.

Land Use

Land use analysis conducted by Suffolk County Economic Development and Planning in 2015, presented in Figure 13, shows the transition from commercial to industrial uses east of the downtown along Hoffman Avenue and directly across from the Lindenhurst train station. The downtown commercial land use is mostly surrounded by medium to high density residential uses.



Data Source: Suffolk County Economic Development and Planning

Figure 13: Land Use in Downtown Lindenhurst Study Area (2015)

The most dominant land use in the study area is transportation, covering nearly 34% of the study area and includes roadways, railroad, and railroad parking.

The second most common land use in the study area is residential at nearly 32%, with about two-third high density residential and one-third medium density residential uses within the study area. Suffolk County categorizes its residential density based on dwelling units (d.u.)/acre. Low density </= 1 d.u./acre, medium density >1 to <5 d.u./acre, and high density >/= 5 d.u./acre.

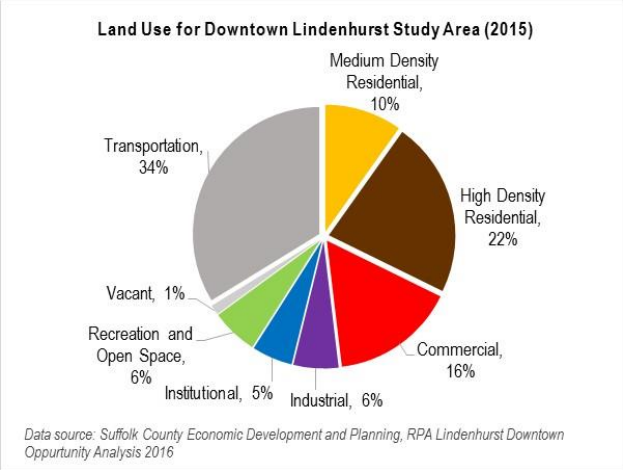


Figure 14: Land Use Distribution in Downtown Study Area (2015)

Other land uses include commercial at about 16%, recreation and open space at about 6%, industrial uses at about 6%, and institutional uses at about 5% of the study area. Vacant undeveloped land totaled to just 1.3% of the total study area. [9]

Neighborhood Amenities

The availability of neighborhood amenities, such as playgrounds, open public spaces, community centers, schools, libraries, and churches provide the residents with opportunities for recreation, education, and socializing. There are many amenities in the Lindenhurst downtown study area that are available at the community's disposal.

The ***Irmisch Park***, located on S. Broadway between Kent Avenue and S. Third Street, hosts two museums: the 1901 Restored Railroad Depot and Freight House, and Old Village Hall Museum. This park has untapped potential to be developed as an historical attraction in the downtown.

The ***Fellers Pond Park,*** located north of Byrd Street between N. Alleghany Avenue and Irmisch Avenue, features multiple playgrounds, ballfields, and Fellers Pond.

The ***Village Square***, located at the intersection of Wellwood Avenue and Hoffman Avenue, is an open green space that hosts numerous events in the downtown: Ales

by the Rails Craft Beer Festival, Color Run, and the seasonal Farmers Market.

The ***Restored Railroad Depot and Freight House***, operated by the Lindenhurst Historical Society, displays artifacts connecting with the railroad like rail shipments, employee uniforms, and historical pictures of railroad scenes.

The ***Old Village Hall Museum,*** operated by the Lindenhurst Historical Society, contains plentiful historical artifacts that portray local history plus offers several collections of special events throughout the year.

Lindenhurst Historic Home Museum, located on 272 S. Wellwood Avenue, formerly home of the St. Vincent de Paul Society, is another museum that displays artifacts and hosts special events throughout the year.

The ***Lindenhurst Memorial Library, l***ocated on Lee Avenue/Wellwood Avenue, south of the study area. It serves the Lindenhurst School district and provides various early childhood, school, teen, adult and family programs.

The ***Alleghany Avenue Elementary School and Lindenhurst Middle School*** are located just outside the study area, south of E. Gates Avenue.

Figure 15: Neighborhood Amenities in Downtown Study Area

The ***Lindenhurst Youth Center***, located on S. Smith Street, provides a safe, supervised space for the youth, 10-18 years of age. [10]

There are three churches located within the downtown - ***Our Lady of Perpetual Help Church*** on S. Wellwood Avenue, ***Evangel Church of God*** on W. John Street, and ***St. John's Evangelical Lutheran Church*** on E. John Street.

Store Front Uses and Vacancy Rates

Following the trend in most downtowns in Suffolk County, the percentage of occupied storefronts that were retail stores has been declining in downtown Lindenhurst. In Lindenhurst, the retail percentage was 39% in 2015, down from 40% in 2010 and 46% in 2000. [11]

Walking surveys done by the Suffolk County Planning Department to monitor retail and commercial development in the downtown Lindenhurst, shows that the vacancy rates have improved since 2010. Downtown Lindenhurst had a vacancy rate of 10% in 2000 and 6% in 2005.

Figure 16: Vacant Retail Spaces and Upcoming Developments along Hoffman and Wellwood Avenues (as of Dec 2018)

Between 2005 and 2010, the vacancy rate in downtown Lindenhurst spiked to 18%, probably as a result of the recession. The vacancy rate did improve to 16% in 2015. [9] Figure 16 shows vacant retail spaces along Hoffman and Wellwood Avenues, as observed during a field survey in May 2019.

In 2017, the Village created its first business attraction strategy welcoming 12 new businesses and restaurants to the core business district with more in the pipeline and under construction due to open in 2019. The Village is also developing a plan to expand its performing arts venues. [12]

Future Developments

In May 2018, the Village of Lindenhurst approved its largest housing development project to date. Tritec Real Estate will redevelop a 7-acre parcel on E. Hoffman Avenue near the Long Island Rail Road (LIRR) station and build 260 multi-family rental units attracting young people, seniors and families. This $160-million development broke ground in May 2019 and is expected to complete construction in late spring of 2021.

Another potential new development location is the currently vacant Waldbaum's site. The vacant site is positioned along E. Hoffman Avenue between Irmisch Avenue and Wellwood Avenue on the north side of the LIRR tracks. The Village of Lindenhurst is currently considering proposals for this site.

2.3 Transportation Infrastructure and Mobility

Evaluation of the state of transportation infrastructure and mobility in the downtown included assessment of the street network and typology, transit and bike accessibility, state of pedestrian infrastructure, and crash data analysis. Input on perceived state of sidewalks, driver behavior and walking experience garnered through the six LindenWalks – walkability audits with community members, the Village of Lindenhurst, and the local Chamber of Commerce, is also incorporated in the analysis.

The study area is centrally located in the Village, accessible to many surrounding communities. The prominent north-south street in the study area Wellwood Avenue connects the downtown to major highways - NY27 and Southern State Parkway in the north and NY27A in the south.

Street Network – Hierarchy and Traffic Flow

Roadways are classified by their function within the overall road network. Arterial roadways are intended to emphasize mobility and local roadways are intended to emphasize property access. Collector roadways are intended to provide a balance of mobility and property access. Wellwood and Hoffman Avenues are the two minor arterial streets in the study area that feed to principal arterials –

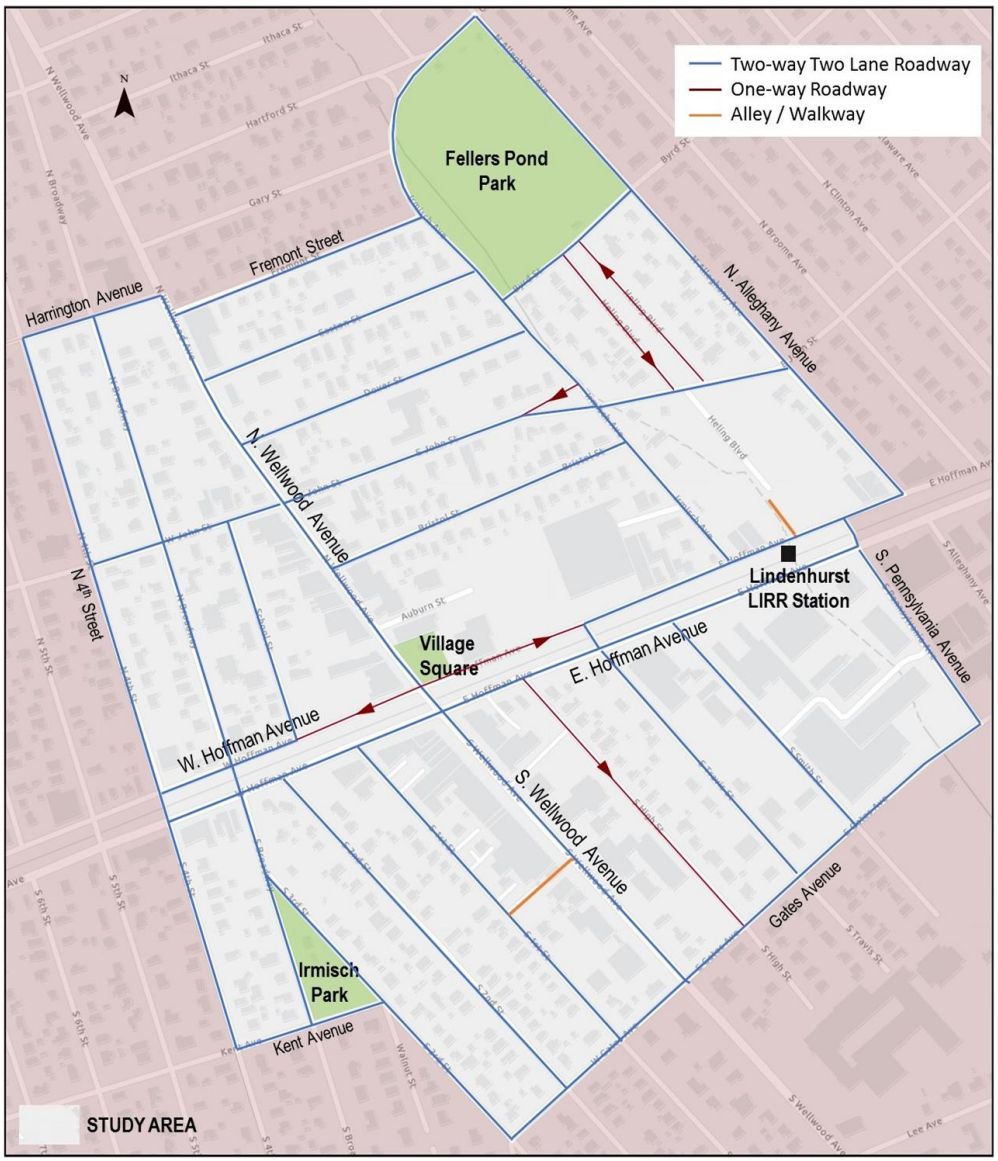


Figure 17: Traffic Flow in Downtown Lindenhurst Study Area

NY27 and Southern State Parkway, beyond the study area. E. John Street is the only major collector street in the study area with all other streets being local roads. [13]

Pedestrian Infrastructure

Pedestrian infrastructure assessed within the existing conditions analysis included availability and condition of sidewalks, condition of pedestrian crossings in terms of curb ramps and crosswalks, lighting, landscaping, wayfinding and availability of street furniture, such as benches. The analysis of the existing pedestrian infrastructure within the study area was conducted through field surveys in August 2018 and a review of aerial imagery.

Sidewalks and Curb Ramps

Figure 18: Condition of Sidewalks and Curb Ramps within the Study Area shows the availability and condition of sidewalks and curb ramps within the study area. Sidewalks were assessed and rated in the following three categories:

- Good - Sidewalks with no tripping hazards and no broken/ heaved section;
- Fair - Sidewalks with smooth surface, without large cracks and only minor heaved sections;
- Poor - Sidewalks with broken, majorly upheaved, overgrown segments.

Curb ramps were assessed and rated in the following three categories:

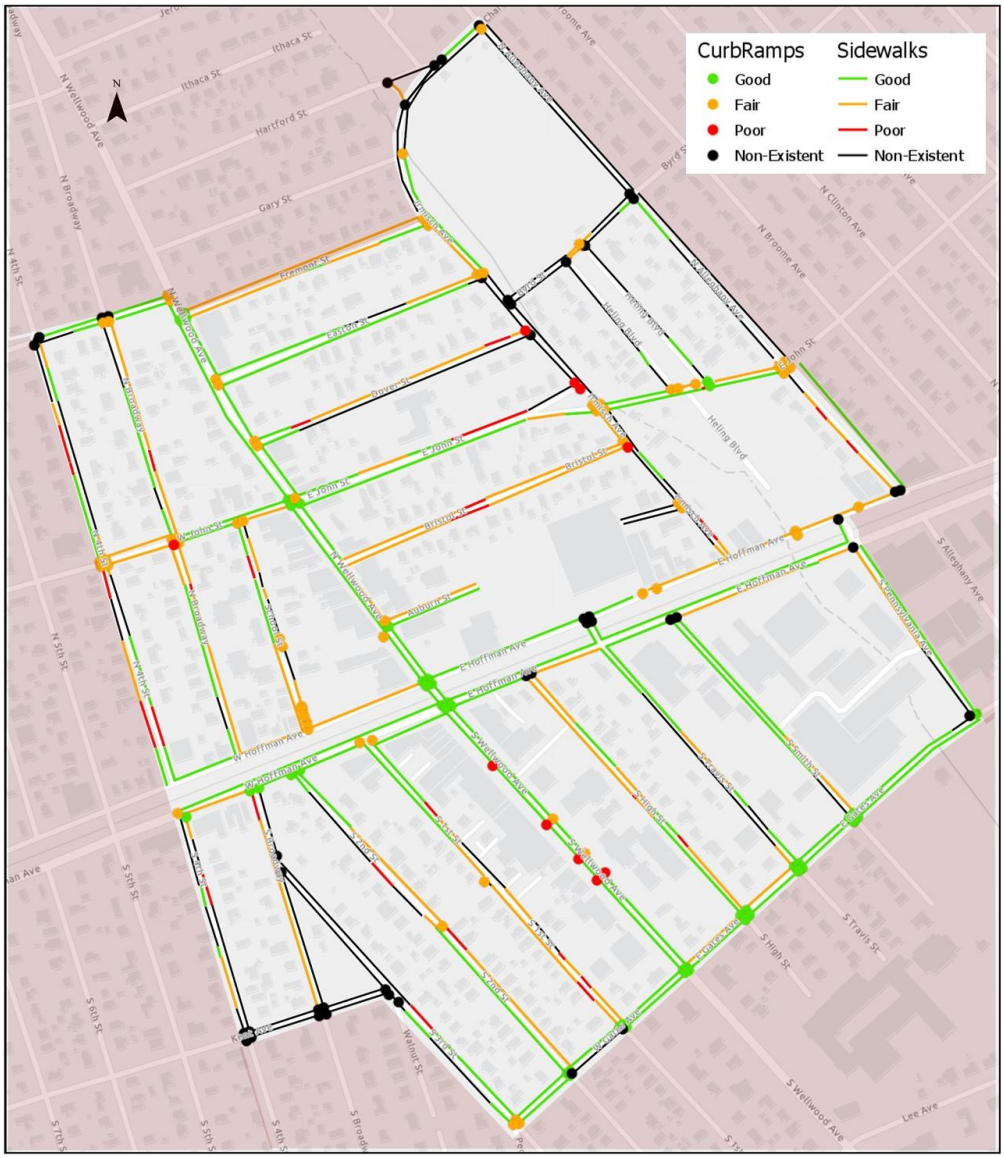


Figure 18: Condition of Sidewalks and Curb Ramps within the Study Area

- Good - good condition detectable warnings and maintained slopes;
- Fair - fair condition detectable warning still visible to the pedestrians, maintained slopes;
- Poor - broken detectable warnings, overgrown and uneven sloped ramps.

It was observed that conditions of the sidewalk along the main arterial roads – Wellwood Avenue and Hoffman Avenue were mostly in good condition with only a few sections in fair condition. However, local roads serving residential properties either had sidewalks mostly in fair to poor condition or were missing sidewalks.

Out of the existing 9.7 miles of sidewalks in the study area – approximately 58% are in good condition, 37% are in fair condition and 5% are in poor condition. The streets in the downtown study area need about 3.6 miles of additional sidewalks to fill the missing sidewalk gaps and achieve contiguous sidewalk availability. Most of the curb ramps within the study area were found in fair condition, with approximately 53% of the total existing curb ramps. 38% of the existing curb ramps were in good condition and about 9% were in poor condition. There were 45 locations where the curb ramp was not provided.

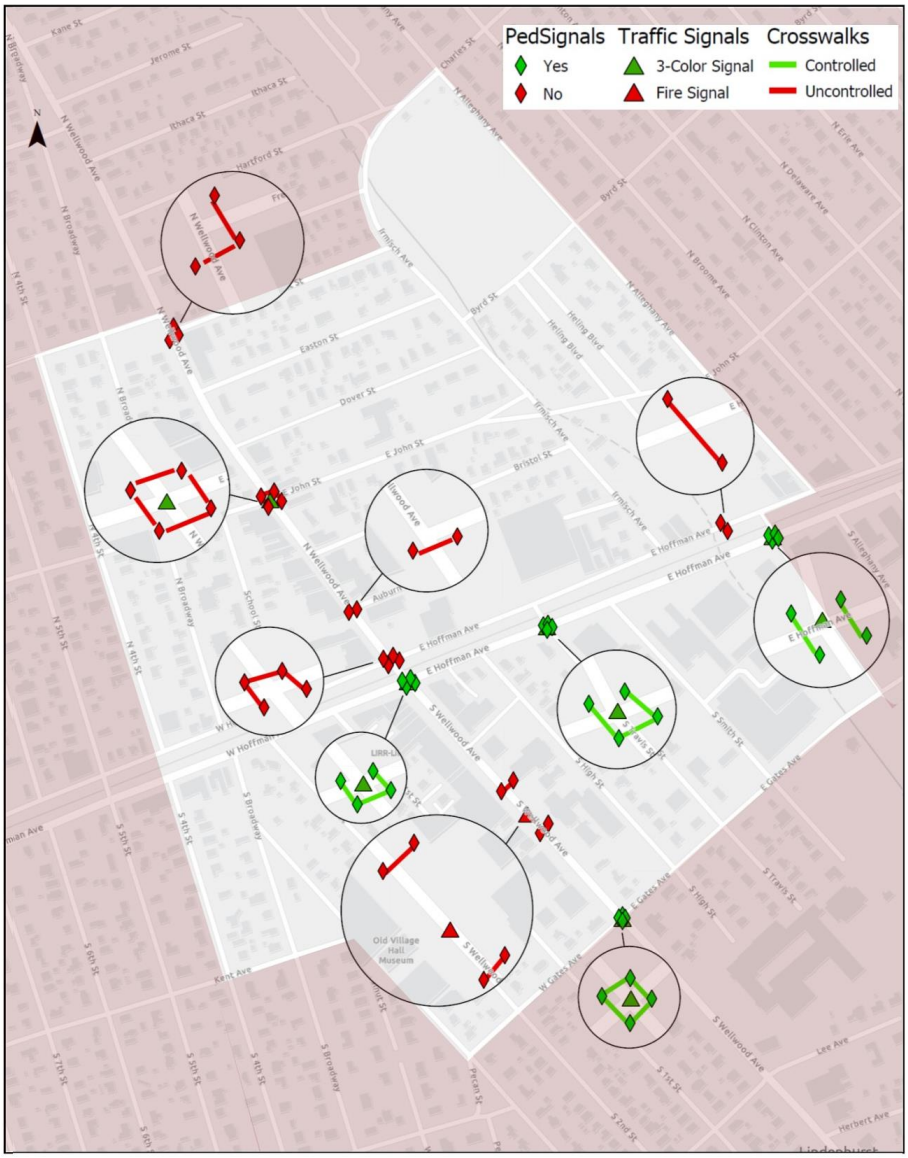


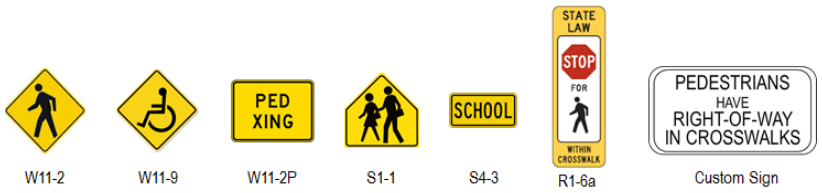
Figure 19: Condition of Crosswalks and Traffic Signals within the Study Area

Crosswalks and Traffic Signals

All crosswalks and traffic control signals in the downtown study area are located along Wellwood and Hoffman Avenues, as depicted in Figure 19. 3-color traffic signals are present at the following intersections: John St. and N. Wellwood Ave., Hoffman Ave. and S. Wellwood Ave., S. Wellwood Ave. and Gates Ave., E. Hoffman Ave. and Travis St., and E. Hoffman Ave. and S. Pennsylvania Ave.

Additionally, an emergency signal for fire station is present on S. Wellwood Avenue in front of the Fire Department. This signal normally flashes yellow to Wellwood Avenue traffic and can be preempted by the Fire Department to stop traffic to allow safe egress by responding fire vehicles. The preemption signal is currently not functioning properly.

Pedestrian crossings are available at 11 locations on N. & S. Wellwood, and E. Hoffman Avenues.



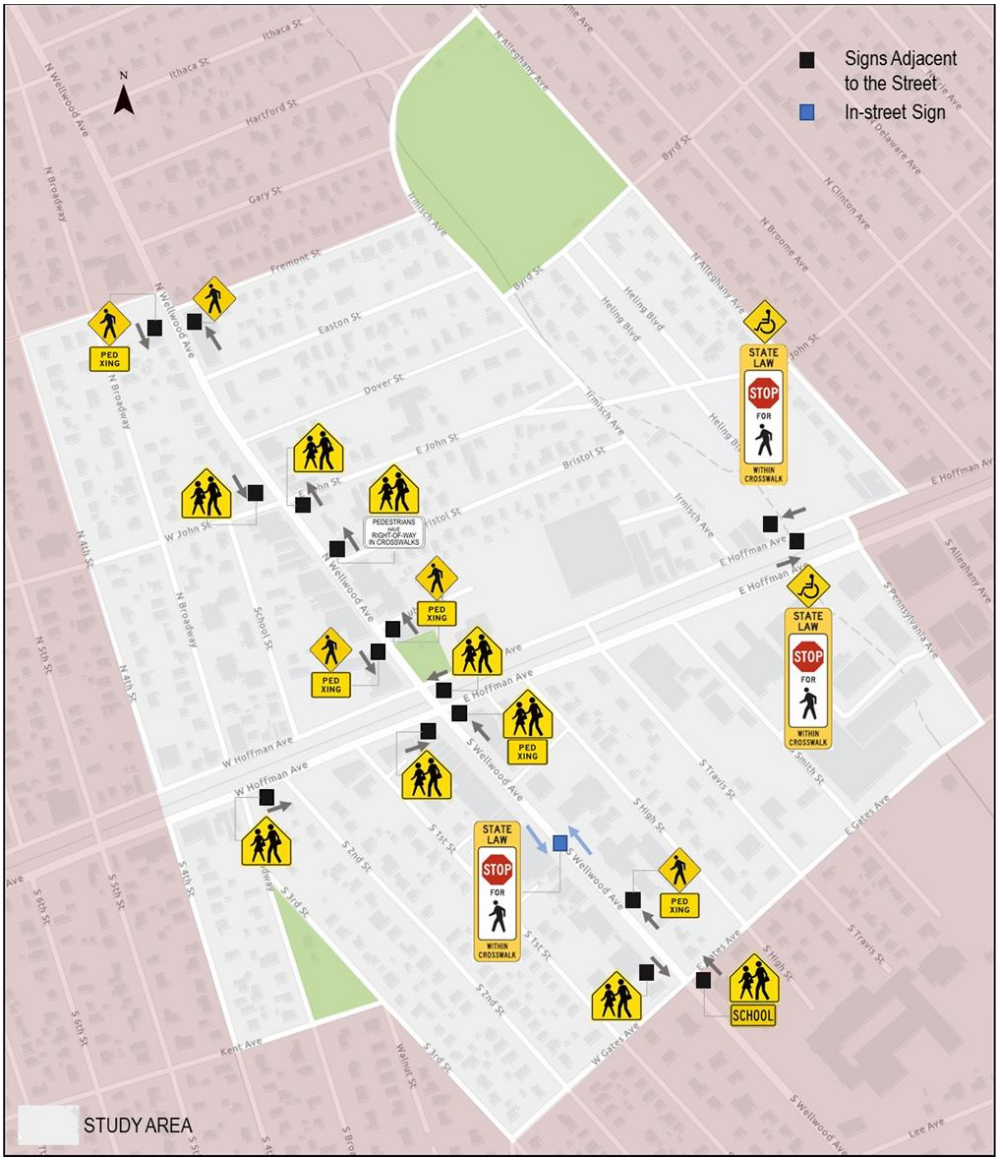


Figure 20: Traffic Control Signs within the Study Area

More than half of these crosswalks, 13 out of 25, are uncontrolled crosswalks. An uncontrolled crosswalk is one where motorists do not have to stop for a stop sign or a traffic signal. Only four intersections have pedestrian signals, which notify the pedestrians when pedestrians may cross the street.

Figure 20 shows the pedestrian-related regulatory, warning and school signs located within the study area. Most of the signs are placed adjacent to the street, except one mid-block in-street sign on S. Wellwood Avenue.

Pedestrian Crash Analysis

Over 40 pedestrian crashes occurred in the Village of Lindenhurst leading to 8 fatalities since 2013 as per NYSDOT data on pedestrian crashes.

Out of these, 12 crashes involving fatalities and injuries were reported to have occurred within the study area. These crashes primarily occurred along Wellwood Avenue and Hoffman Avenue. Location and severity for each of the 12 crashes is depicted in Figure 21.

The 12 crashes led to 11 injuries and 4 fatalities, as summarized in Figure 23. Two of the four fatalities occurred at the same location – S. Broadway and W. Hoffman

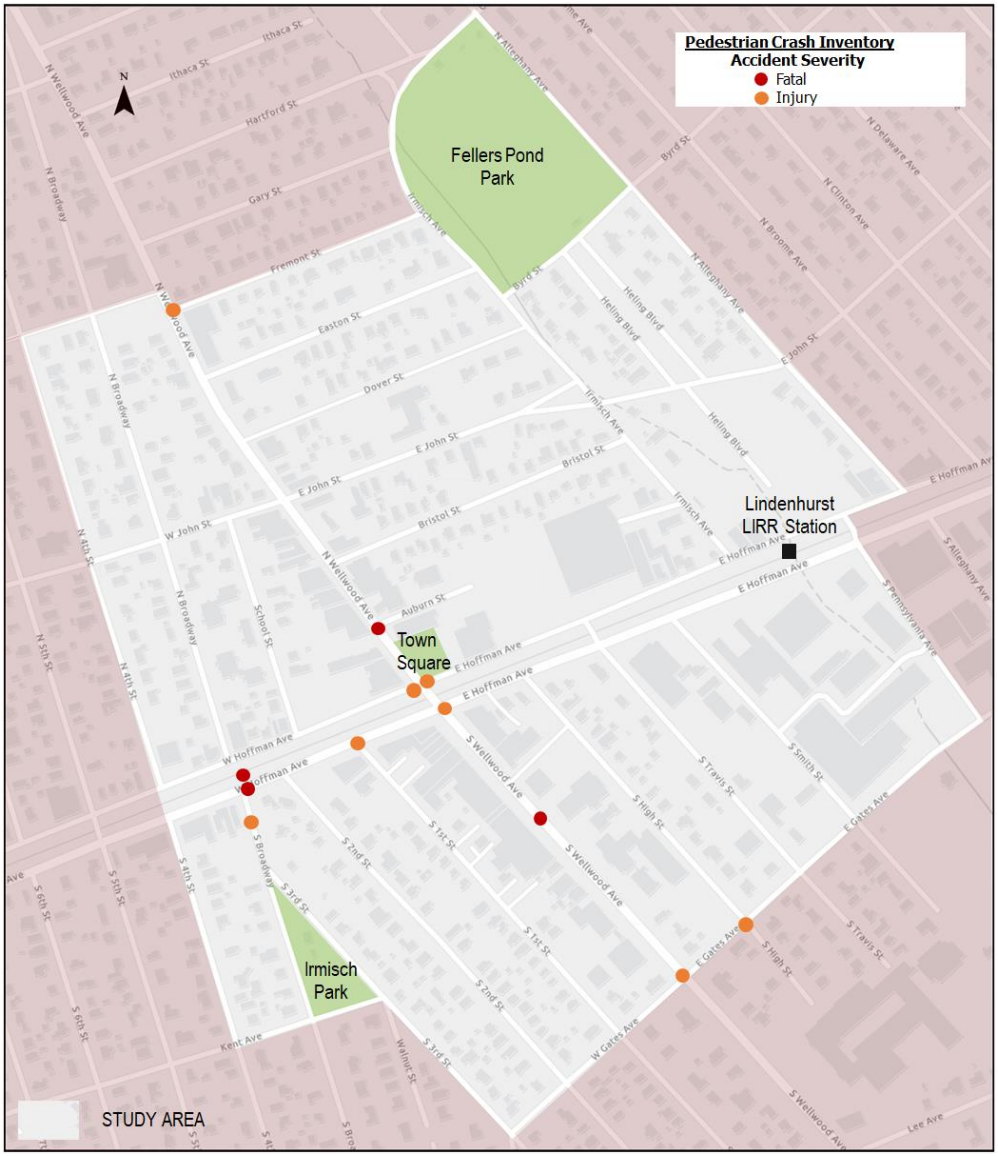


Figure 21: Vehicle-Pedestrian Crash Inventory (2013-Aug 2018)

Avenue. Apparent factors attributed to the four fatalities include backing unsafely, failure to yield right of way, and driver inattention.

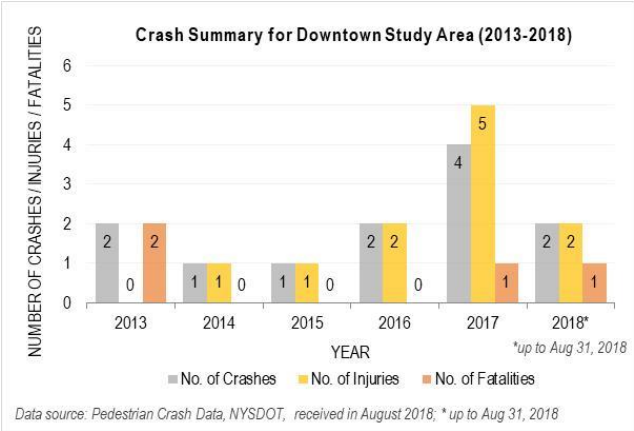


Figure 23: Crash Summary for Downtown Study Area (2013-2018)

Crash clusters, summarized in Figure 22, were observed at three locations – Hoffman Avenue and Wellwood Avenue intersection, W. Hoffman Avenue and S. Broadway Intersection and N./S. Wellwood Avenue.

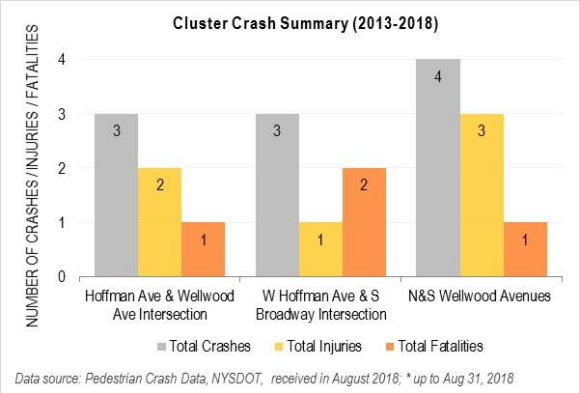


Figure 22: Cluster Crash Summary (2013-2018)

Table 1: Cluster Crash Summary (2013-2018)

Cluster	Total Crashes*	Total Injuries*	Total Fatalities*	Traffic Control	Road Surface Condition	Lighting Condition	Apparent Factor
Hoffman Ave & Wellwood Ave Intersection	3	2	1	Traffic Signal	Dry	Day Light / Dark with Road Lighted	Backing Unsafely/Failure to yield right of way
W. Hoffman Ave & S. Broadway Intersection	3	1	2	None	Dry	Day Light / Dark with Road Lighted	Driver Inattention
N. & S. Wellwood Avenues	4	3	1	2- None, 1-Traffic Signal	Dry	Day Light / Dusk	Failure to yield right of way / Driver Inattention

**(2013-Aug 2018)*

Bike Infrastructure

Unsigned Connecting Bike Route

There are no shared-use paths, bicycle lanes or bicycle routes within the study area. Hoffman Avenue is identified as an unsigned connecting route in the Long Island Bikeways and Trailways Map. [14] It is part of the unsigned connecting route that connects Bethpage Parkway Bikeway with a hiking trail to Belmont Lake State Park.

Bike Share

Suffolk County finalized a contract with a Boston based bike-share company in 2018 to design and build bicycle-share services in the County and plans to launch it within four municipalities in summer 2019. Village of Lindenhurst should continue to support introducing the bike-share program within the downtown.

Bike Racks

Five bike racks are available at the Lindenhurst LIRR Station. Field survey observations indicated moderate usage of the bike racks.

Goods Delivery and Movement

As per SC legislation §185-19, a truck route system upon which trucks, tractors and tractor-trailer combinations in excess of five tons may travel is established on the following streets or parts of streets: E. Hoffman Avenue (except north of the railroad viaduct); W. Hoffman Avenue; S. Wellwood Avenue; N. Wellwood Avenue. [15]

Transit

There is direct access to the LIRR and the Suffolk County Transit Bus S20 within the study area, as shown in Figure 24.

Lindenhurst LIRR station, located at Wellwood Avenue and E. Hoffman Avenue, is a station on the Babylon branch of the Long Island Rail Road rail service. Commuter parking available to railroad users is discussed in the parking section. Escalators are available just west of the station building, from street level to platform.

Elevators or accessibility ramps are not available at the station, limiting the station's accessibility.

Connection to Suffolk County Transit Bus S20 is available at the intersection of Wellwood Avenue and E. Hoffman Avenue and along E. John Street. Bus S20 connects Lindenhurst downtown to South Bay shopping center, Babylon LIRR Station in east and to Copiague LIRR, Amityville LIRR stations and Sunrise Mall on the west. S20 service is available Monday through Saturday only.

Figure 24: Transit Access in Downtown Lindenhurst Study Area

2.4 Parking

Review of downtown parking includes mapping and development of an inventory of parking typology and availability within the downtown study area.

Parking Inventory

Parking within the downtown study area can be categorized into the following types: municipal, on-street parking (metered / unmetered), commuter parking (includes municipal parking) and private parking. Figure 25 shows the location of municipal parking lots (including commuter lots) as well as metered on-street parking. The figure also displays the location of handicap spaces in each parking lot and metered on-street parking.

Table 2: Downtown Parking Inventory

Type of Parking	Total Spaces	Disabled Parking Spaces
Municipal Parking (other than commuter parking)	377	21
On Street Parking (Wellwood and Hoffman Ave)	335	4
Commuter Parking	543	16
Private Parking	1150*	N.A.
Total	2405	41

**estimate (includes currently vacant Waldbaum's site)*

Figure 25: Parking Inventory by Type – Downtown Lindenhurst Study Area

Figure 26 shows the parking design typology for the parking available in the downtown study area.

Municipal Parking Inventory

In the study area, municipal parking includes Village and County-owned parking lots as well as parking bays under the LIRR viaduct. The parking spaces available at Fellers Pond Park are also considered in the inventory of municipal parking. Figure 25 shows these areas, labeled as A to J. Together, these ten lots / bays provide 1020 marked parking spaces, including 37 handicap spaces.

Commuter Parking Lots and Permits

The Village of Lindenhurst has two commuter parking lots across from the LIRR station, labeled as 'B' in Figure 25. Residents and non-residents can park in these lots with a commuter parking permit. Additionally, commuter parking permits are required for all parking bays under the LIRR viaduct from Wellwood Avenue to Delaware Avenue, labelled as 'C' in Figure 25.

Commuter spaces in Lots B and Bays C account to 621 parking spaces, including 16 handicap spaces. Additionally, metered railroad parking is also available near the Lindenhurst LIRR Station.

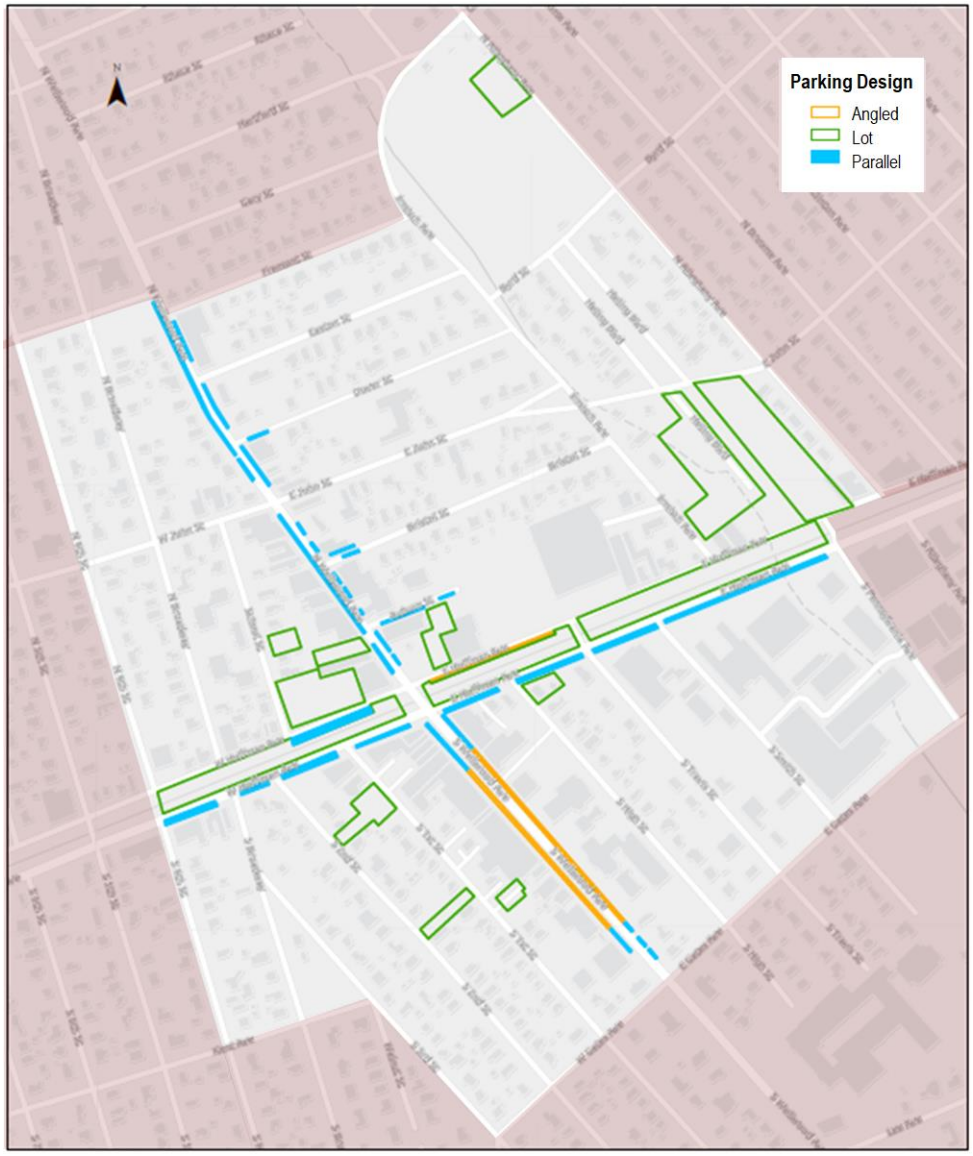


Figure 26: Parking Design Typology – Downtown Lindenhurst Study Area

Lindenhurst Village residents can purchase a commuter parking permit at any time during the year. Non-Resident parking permits are sold on a limited basis via lottery held once a year. Of those submitted, about 150-200 people are selected. Throughout the year, non-resident applicants that have been put on the waiting list (not selected in the lottery) are called and offered the pass. 1,879 resident parking permits and 479 non-resident parking permits were sold in 2017. 1891 resident parking permits and 524 non-resident parking permits were sold in 2018.

Metered On-Street Parking

There are 286 metered on-street parking spaces serving downtown Lindenhurst as of May 2019, which generally allow vehicles to park for a maximum of two hours between the hours of 9AM and 6PM, except Sundays and holidays. These marked metered on-street parking spaces are located along Wellwood and Hoffman Avenues, Auburn Street and Bristol Street.

Parking Utilization

A parking utilization study was conducted in June 2019 to determine the overall parking utilization for curbside / on-street, commuter lot, and municipal lot parking within the downtown. All downtown parking lots except the one at Fellers Pond Park were considered in the parking lot survey. Curbside surveys included sections of N. and S. Wellwood Avenue and E. and W. Hoffman Avenue, that lay within the downtown study area. In addition, curb-side metered parking on two side-streets on N. Wellwood Avenue - Bristol Street and Auburn Street, were also included.

The study found that the parking utilization for the curbside parking spaces averaged 47% for a typical weekday and 46% for a typical weekend. For the municipal parking lots, the study found that the utilization averaged 55% for a typical weekday and 44% for a typical weekend. Further, the overall average weekday parking utilization for commuter lots was at 78%. More details on the survey methodology and findings are available in Appendix C. Parking Utilization Study.

These results are broadly consistent with the parking utilization assessment conducted by the Suffolk County Department of Economic Development and Planning in early December 2015, with observed average overall utilization rates of 49% for curb-side parking, 45% for municipal parking lots, and 80% for the commuter parking lots. [11]

These parking utilization rates indicate that there is adequate parking available within the Lindenhurst downtown to support current uses. However, with the ongoing revitalization of the downtown and numerous new businesses moving in, it is expected that there will be more downtown visitors and hence increased parking demand. The Village should consider evaluating their parking demand and supply as and when warranted by the upcoming developments within the downtown.

Section 3 Looking Forward: Walkability Improvements

A wide range of improvements are identified based on findings from existing conditions analysis, stakeholder input obtained from LindenWalks and online public engagement tool, and discussions with Village representatives. The sections ahead describe the proposed improvements, their locations, benefits, key planning / design / engineering considerations, coordination needs, Right-of-Way (ROW), and parking impacts. Relevant best practices reviewed as part of the Best Practice Analysis are also discussed in some sub-sections as relevant.

3.1 Pedestrian Safety and Infrastructure

The community revealed grave concerns about pedestrian safety in several downtown areas, often related to street design that allows speeding, especially along S. Wellwood Avenue and S. First Street. Other concerns relate to difficulties safely crossing streets in the downtown area and dangerous situations created by vehicles carrying out U-turn or backing out of the angled parking spots on S. Wellwood Avenue

Multiple pedestrian safety improvements are identified as relevant to downtown Lindenhurst, which include some traffic calming measures. The Institute of Transportation Engineers (ITE) defines traffic calming as the combination of measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users. Traffic calming consists of physical design and other measures put in place on existing roads to reduce vehicle speeds and improve safety for pedestrians and cyclists. These measures can be implemented at an intersection, street, neighborhood, or area-wide level.

The following pedestrian safety improvements have been identified for downtown Lindenhurst:

Curb Bulb-outs:

Bulb-outs expand the curb line into the lane of the roadway adjacent to the curb for a portion of a block either at a corner or mid-block. Curb-bulb-outs can provide opportunities for landscaping, stormwater management elements like bioswales, and street furniture, such as information kiosks and benches.

Benefits associated with curb bulb-outs include:

- Curb extensions significantly improve pedestrian safety by reducing the crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, reducing the time that pedestrians are in the street, and allowing space for the installation of a curb ramp.
- Curb extensions placed at an intersection essentially prevent motorists from parking in or too close to a crosswalk and from blocking a curb ramp or crosswalk.
- Curb extensions, depending on the size, can provide space for functional elements such as seating, plantings, and furniture.
- Emergency access is often improved through the use of curb extensions if intersections are kept clear of parked cars. Fire engines and other emergency vehicles can climb a curb where they would not be able to move a parked car.

Lane Removal: A lane removal reassigns underused traffic lanes to other functions. The removed lane can be used to accommodate expansion of sidewalk, pedestrian refuge islands, expanded pedestrian space, on-street or separated bicycle lanes, parking or other functions.

Benefits associated with lane removal include the following:

- Lane removal can reduce opportunities for speeding and aggressive driving, thereby reducing the severity and frequency of crashes
- The space gained by removal of the lane can be repurposed to accommodate for pedestrian refuge islands, parking, bus lanes, bicycle lanes, expanded sidewalks/pedestrian space, or other uses.

Median Barrier: A median barrier is usually an elevated median or median safety island extended through an intersection to prevent left turns and through-movements to and from the intersecting street. Pedestrian and cyclist access can be maintained with pedestrian refuges and bicycle access with gaps in the median. As with typical

medians, trees or plantings can be included within the median barrier.

Benefits associated with median barriers include the following:

- Median barriers enhance pedestrian safety and accessibility by reducing crossing distances and providing refuge for pedestrians to cross the road in stages.
- They also enhance safety at intersection by reducing potential vehicle movements and conflicts, particularly left turns.
- Landscaped medians can green and beautify the streetscape with trees and/or vegetation, improving environmental quality and potentially incorporating stormwater source controls.

Pedestrian Warning Signs:

A variety of advisory and regulatory signs are used in conjunction with marked crosswalks to improve their visibility. They alert unfamiliar motorist to the presence of pedestrians and increase the likelihood that motorists will yield to pedestrians. These signs are used to reduce the incidence of multiple-threat crashes at crosswalks on multi-lane roads.

These signs when installed alone, only have a small effect on overall driver yielding rates. However, when installed with RRFBs have shown significant increase in driver yielding behavior.

Rectangular Rapid Flash Beacon (RRFB): RRFBs are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. RRFBs use an irregular flash pattern similar to emergency flashers on police vehicles. RRFBs can either be solar powered through standalone solar panel units or connected to a permanent power grid.

Benefits associated with RRFBs include the following:

- RRFBs are a lower cost alternative to traffic signals and hybrid signals that are shown to increase driver yielding behavior at crosswalks significantly when supplementing standard pedestrian crossing warning signs and markings. [16]
- The addition of RRFB may also increase the safety effectiveness of other treatments, such as the use of advance yield markings with YIELD (or STOP) HERE FOR PEDESTRIANS signs.

Pedestrian Signal Heads: Pedestrian signal heads are pedestrian control features that provide special types of traffic signal indications exclusively intended for controlling pedestrian traffic. These signal indications consist of the illuminated symbols of a WALKING PERSON (symbolizing WALK) and an UPRAISED HAND (symbolizing DONT WALK), as shown in Figure 27. [17]

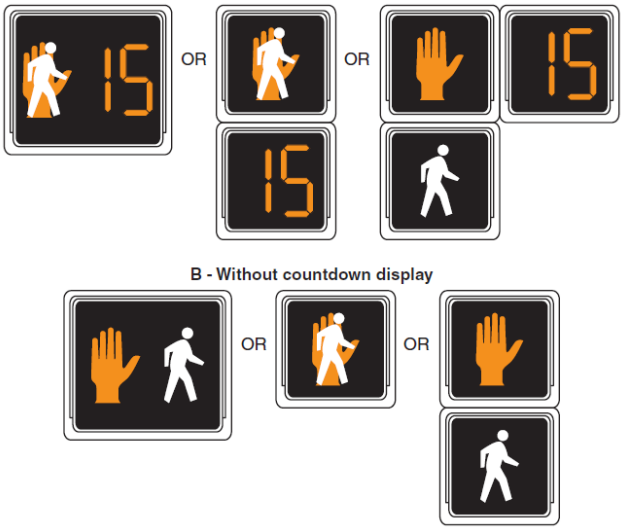


Figure 27: Typical Pedestrian Signal Indications

The Manual on Uniform Traffic Control Devices (MUTCD) states that pedestrian signal heads can be used in conjunction with vehicular traffic control signals under any of the following conditions:

- If a traffic control signal is justified by an engineering study and meets either warrant 4 (pedestrian volume) or warrant 5 (school crossing);
- If an exclusive signal phase is provided or made available for pedestrian movements in one or more directions, with all conflicting vehicular movements being stopped;
- At an established school crossing at any signalized location; or
- Where engineering judgment determines that multi-phase signal indications (as with split-phase timing) would tend to confuse or cause conflicts with pedestrians using a crosswalk guided only by vehicular signal indications. [17]

Improvement Locations

Intersection of Hoffman Avenue and Wellwood Avenue can include the following improvements:

- Elimination of northbound right-turn lane on S. Wellwood Avenue at Hoffman Avenue
- Introduction of bulb-outs at S. Wellwood Avenue and Hoffman Avenue intersection
- Median extension to create safe traffic island
- Introduction of 'No U-turn' on S. Wellwood Avenue at Hoffman Avenue
- Pedestrian signal heads on all crosswalks at Hoffman and Wellwood Avenues intersection

Furthermore, the following improvements can be considered along N. and S. Wellwood Avenue:

- Relocation of crosswalk in front of Lindenhurst Fire Department on S. Wellwood Avenue, with addition of curb bulb-outs, pedestrian warning signs, and RRFBs activated by push buttons.
- Addition of curb bulb-out, pedestrian warning signs, and RRFPs activated by push buttons at the crosswalk in front of Our Lady of Perpetual Help Church on S. Wellwood Avenue
- Relocation of crosswalk at Auburn Street and N. Wellwood Avenue, with curb bulb-outs, pedestrian warning signs, and RRFBs activated by push buttons.
- Addition of crosswalk at Bristol Street and N. Wellwood Avenue, with addition of curb bulb-outs, pedestrian warning signs, and RRFBs activated by push buttons.
- Addition of curb bulb-outs at John Street and N. Wellwood Avenue, with added pedestrian warning signs and pedestrian signal.
- Addition of curb bulb-outs at Harrington Avenue/ Fremont Street and N. Wellwood Avenue, with added pedestrian warning signs and RRFBs activated by push buttons.

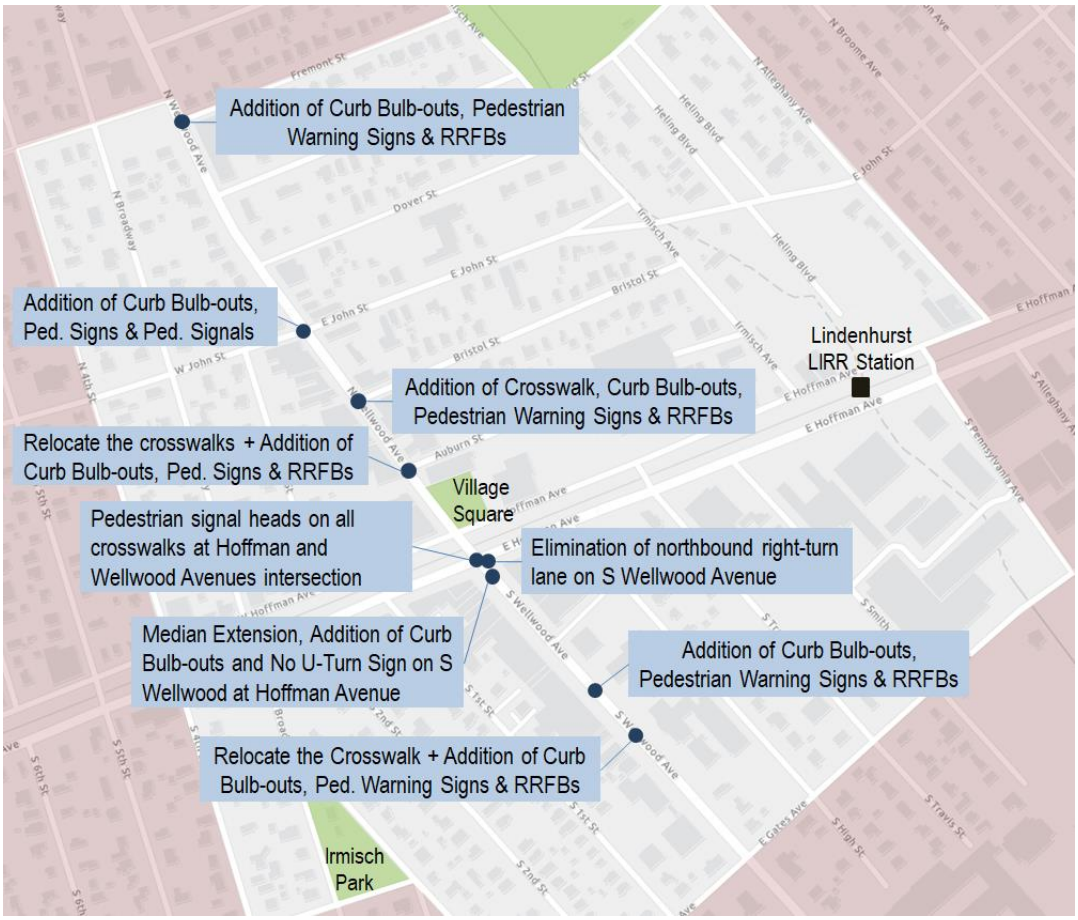


Figure 28: Location of Traffic Calming Improvements on Wellwood Avenue

In addition, a careful review of the Tritec developments access from the site to the LIRR needs to be examined closely. As a mixed-use development, its proximity to the LIRR will generate pedestrian crossings of East Hoffman Avenue. The current site plan indicates that the main entrance will be west of S. Pennsylvania Avenue. This will encourage mid-block crossings since pedestrians will seek the shortest distance to cross East Hoffman Avenue. Therefore, Tritec must include transportation improvements to provide a safe and effective mid-block crossing as part of their proposal.

Further, redevelopments in the southern part of the study area (along S. Wellwood Avenue, just north of Gates Avenue) are likely to occur as the downtown becomes more active and new business come in. The Village should consider installing a new crosswalk and extending the bulb-outs and RRFB treatment at a mid-block location between the Fire Department and Gates Avenue, as and when warranted by the redevelopment.

Implementation Considerations

Design / Engineering

- Traffic conditions must be considered in planning lane removals. Considering that the improvement involves removal of a short right-turn lane, benefits of the turn lane need to be weighed against the safety benefits of shorter crossing distances for pedestrians.
- Turning speeds at intersections can be reduced with curb extensions (curb radii should be as tight as is practical). The turning needs of larger vehicles, such as school buses, need to be considered in curb extension design.
- Proposed improvements especially curb bulb-outs and median extension may impact street drainage or require additional catch basins.
- Landscaping or stormwater source controls may require a partner for ongoing maintenance. If outfitted to capture stormwater, careful consideration must be given to design, overflow control, and plant species.
- Engineering judgment should determine the need for separate pedestrian signal heads and accessible pedestrian signals. The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance on the design, location and height of pedestrian signal heads, pedestrian intervals and signal phases.
- The MUTCD provides guidance on use of RRFBs as pedestrian-actuated conspicuity enhancements for pedestrian and school crossing warning signs and should be reviewed. [17]
- Parking removal should be considered on a case-by-case basis using engineering judgment and community input.

Stakeholder Coordination

- E. Hoffman Avenue on south side of the LIRR Babylon Branch tracks is part of County Road CR12 and is maintained by the Suffolk County Department of Public Works (DPW). Wellwood Avenue within the geographic scope of the proposed improvements is a village road.
- Any improvements at the intersection of Hoffman Avenue and Wellwood Avenue will require review and coordination with Suffolk County DPW.
- Lindenhurst Fire Department, Our Lady of Perpetual Help church, and businesses adjoining the proposed improvements should be engaged prior to final design and implementation.

ROW / Parking / Utility Relocation Impacts

- No right of way acquisition will be required to implement the proposed improvements. Utility relocation may be required depending on further examination of the utility services and improvement design.
- Loss of a few parking spots can be anticipated if the traffic calming improvements are implemented. Introduction of bulb-outs will require removal of four parking spaces; however, loss of a few parking spaces comes with increased pedestrian safety and overall enhanced walkability along Wellwood Avenue.

Figure 29 and Figure 30 illustrate the proposed pedestrian safety improvements on Wellwood Avenue.

Sidewalk Continuity and Ramp Availability

Sidewalk infrastructure is a key component of urban street design that supports walking. It separates pedestrians from vehicular traffic and contributes significantly to enhance connectivity and creates a pedestrian friendly environment. Safe, accessible, well-maintained and contiguous sidewalk availability is a necessary investment towards a more walkable and attractive downtown. The width of the walkways should correspond to the conditions present in any given location (i.e. level of pedestrian traffic, building setbacks, or other important natural or cultural features). Federal Highway Administration and ITE suggest five feet as the minimum width for a sidewalk. This is considered ample room for two people to walk abreast or to pass each other. Often, downtown areas, near schools, transit stops, or other areas of high pedestrian activity call for wider sidewalks.

Curb ramps provide pedestrian access between the sidewalk and the roadway for people using mobility devices, such as wheelchairs / walkers, strollers, bicycles, and pedestrians who have trouble stepping up and down high curbs.

Benefits associated with good pedestrian connectivity include the following:

- Pedestrian network connectivity, along with quality street infrastructure can significantly contribute to walking environment attractiveness within a downtown.
- Numerous studies have shown that good pedestrian network connectivity and walkability are desired attributes of housing market and have a positive impact on housing values. [18]
- Positive health impacts are reported for people who live in walkable neighborhoods. Walkable neighborhoods also spur more social interactions of the sort that encourage creativity as well as higher levels of civic engagement. [19]

The existing conditions analysis pointed out that about 4.1 miles of sidewalks and 55 curb ramps were needed to achieve sidewalk continuity through the downtown study area. This includes about 0.5 miles of existing sidewalks and 10 curb ramps that were found in poor condition during the existing conditions analysis.

Implementation Considerations

Design / Engineering Needs: Curb ramps need to be designed on an individual basis to ensure ADA compliance.

Stakeholder Coordination: Improvements to the curb ramps along E. Hoffman Avenue on south side of the tracks require coordination with Suffolk County DPW.

ROW / Parking / Utility Relocation Impacts: The best ramp configuration for a given location may impact the location of utilities, traffic signs, light poles, crosswalks, stop bars and other roadway features. Such issues should be considered on a case-by-case basis using engineering judgment.

Curb Bulb-Outs, Median Extension and Elimination of Right-turn Lane at South Wellwood and Hoffman Avenue

Median Extension offers a Safe Crossing Island at Intersection of South Wellwood and Hoffman Avenue

Redesign of Crosswalk at North Wellwood Avenue and Auburn Street, Addition of Curb Bulb-outs and RRFBs

Figure 29: Pedestrian Safety Improvements on N. / S. Wellwood Avenue at Hoffman Avenue and Auburn Street

Figure 30: Pedestrian Safety Improvements on S. Wellwood Avenue

3.2 Cycling Infrastructure

Bike infrastructure: Bike Lanes, Bike Boxes, Parking Racks

There are no shared-use paths, bicycle lanes or bicycle routes within the study area. The Village has expressed interest in establishing bike connectivity from the downtown going south to Montauk Highway and the Marina. The improvements proposed here are limited to the study area and offer the desirable bike infrastructure connection from Hoffman Avenue to S. Wellwood Avenue within the Village Downtown.

Figures 31-34, illustrations from the National Association of City Transportation Officials (NACTO)'s Urban Bikeway Design Guide, provide examples of different treatments for accommodating bicyclists.

Bike Lanes

NACTO defines bike lane as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Conventional bike lanes run curbside when no parking is present, adjacent to parked cars on the right-hand side of the street or the left-hand side of the street in specific situations.

Bike lanes offer the following benefits [20]:

- Bike lanes enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions and facilitate predictable behavior and movements between bicyclists and motorists.
- They create separation between the bicyclists and automobiles.
- Bike lanes increase total capacities of streets carrying mixed bicycle and motor vehicle traffic.

Figure 31: Conventional Bike Lane

Shared Lane and Sharrows

Shared Lane Markings and "sharrows," are road markings used to indicate a shared lane environment for bicycles and automobiles. The shared lane marking can be used to support a complete bikeway network, however it is not a facility type and should not be considered a substitute for bike lanes, cycle tracks, or other separation treatments where these types of facilities are otherwise warranted or space permits. [20]

Shared Lane Markings offer the following benefits [20]:

- They reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance.
- They alert motor vehicle drivers to the potential presence of bicyclists and have demonstrated to increase the distance between bicyclists and parked cars, keeping bicyclists out of the "door zone".
- These markings can reduce the incidence of sidewalk riding and wrong-way bicycling.

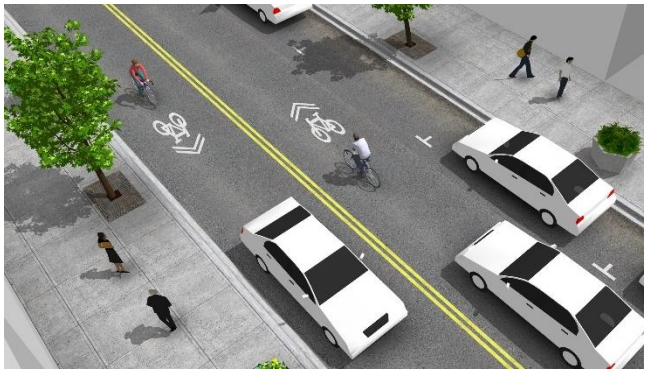


Figure 32: Shared Lane Markings in a Two-way Street with No-Passing

Figure 33: Shared Lane Markings configured for Directional Guidance

Bike Boxes

A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase. [20]

Bike boxes offer the following benefits [20]:

- Bike boxes increase the visibility of bicyclist and helps to prevent 'right-hook' conflicts with turning vehicles at the start of the green indication.
- They group bicyclists together to clear an intersection quickly, minimizing impediment to transit or other traffic.
- Pedestrians benefit from reduced vehicle encroachment into the crosswalk.

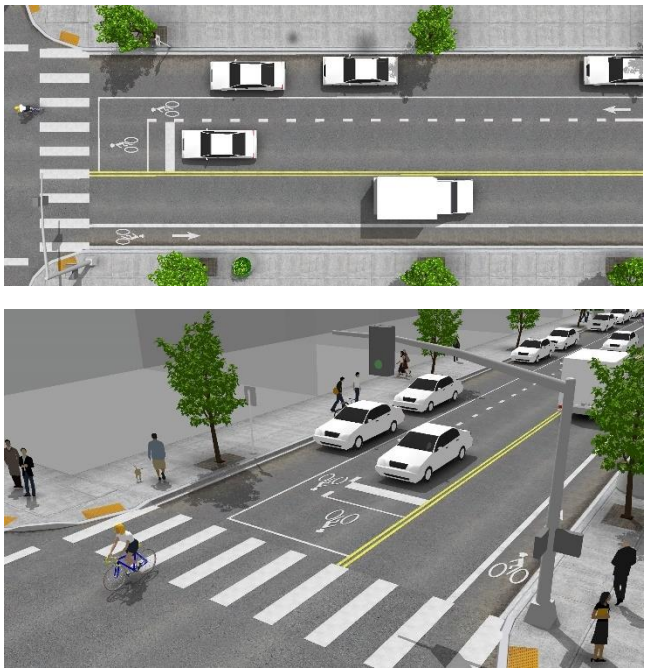


Figure 34: Bike Box at a Signalized Intersection with a Bike Lane

Bicycle Parking Racks

Bicycle parking racks or bike stands are devices to which bicycles can be securely attached for parking purposes. There are various styles available for bike racks, including the inverted U, serpentine, bollard, grid and decorative. The bike rack mounting mechanism and the costing depends on the style of the parking racks chosen by the Village.

With the bike racks located within the extended public square, they are at the heart of the downtown and less than 350 meters from the Lindenhurst LIRR Station. The location is comfortably accessible for both transit users and downtown visitors.

Benefits associated with providing bicycle parking within the downtown include the following:

- Availability of bike parking makes the downtown more bicycle friendly and offers multi-modal transportation options to the community.
- Research indicates that quality bicycle parking equates to more business traffic and revenue generation. [21]
- Bike racks can increase parking capacity at little cost.

Improvements Location

Establishing Bike Connectivity from Hoffman Avenue to S. Wellwood Avenue can include the following:

- Bike Lanes on Hoffman Avenue (south of the tracks).
- Shared Right of Way on Travis Street and E. Gates Avenue.
- Bike Boxes at intersection of S. Wellwood Avenue and E. Gates Avenue, and intersection of E. Hoffman Avenue and Travis Street.
- Addition of bicycle parking racks within the extended public square.

Figure 35 shows the proposed bike lanes, shared lane alignment, and location of bike boxes.

Implementation Considerations

Design / Engineering

- Bike lanes are most helpful on streets with ≥ 3,000 motor vehicle average daily traffic and with posted speed ≥ 25 mph. [20]
- The configuration of a bike lane requires a thorough consideration of existing traffic levels and behaviors, adequate safety buffers to protect bicyclists from parked and moving vehicles, and enforcement to prohibit motorized vehicle encroachment and double-parking. [20]
- Bike Lanes may be distinguished using color, lane markings, signage, and intersection treatments.
- The MUTCD recommends that where shared-use paths are of sufficient width to designate two minimum width lanes, a solid yellow line may be used to separate the two directions of travel where passing is not permitted, and a broken yellow line may be used where passing is permitted. [17]
- The MUTCD provides guidance on design and placement of the shared lane markings. Design guidance provided in NACTO's Urban Bikeway Design Guide should also be reviewed.

Figure 35: Proposed Bike Lane, Shared Lane and Bike Box locations

- NACTO recommends sharrows only for streets with posted 25 mph speeds or slower. Color may be used to enhance the visibility of the marking. Dotted line markings may accompany the marking to further encourage desired lane positioning for bicyclists.
- Design guidance provided for bike boxes in NACTO's Urban Bikeway Design Guide should be considered for design of bike boxes. The MUTCD provides guidelines for Stop lines and pavement markings required to supplement the bike box.

Stakeholder Coordination

- Establishing bike infrastructure along E. Hoffman Avenue on south side of the tracks will need coordination with Suffolk County Department of Public Works.
- If desired, installation of an exclusive bicycle signal phase or leading bicycle interval through the use of bicycle signal heads to allow clearance of the bicycle queue prior to the green indication for motorists, will require additional coordination with the Suffolk County Department of Public Works.

3.3 Creation of New Public Space: Village Square Extension

Public Space, parks and plazas are critical components of our urban environment. Public spaces give identity to neighborhoods and rewards of a well-designed and maintained public space go way beyond just the space. It enriches the lives of its users, enhances its surrounding buildings and neighborhood, and contributes to the community's social, economic and environmental health. They often act as anchors and provide a sense of character and a forum for public activities – all adding to greater community livability.

Vertical gardens

Vertical gardens, also referred to as living walls or green walls, consist of modular panels with vegetation, that can be clamped to the exterior of a building, dividers, interior walls or any vertical surface. For this project, addition of vertical gardens is proposed on the LIRR train trestles located opposite to the Village Square.

Vertical gardens, in context of the proposed improvements, can offer the following benefits:

- Vertical gardens / green walls provide numerous environmental benefits like reduction of urban heat island effect and improvement in air quality. These walls can also positively impact biodiversity and provide habitat for beneficial insects like butterflies and pollinators. [22]
- These walls can create an inviting environment under the trestles and the living art with added street furniture / amenities can create a unique attraction, which can draw and retain more foot traffic to the Lindenhurst Village downtown.
- Another benefit it offers is acoustic buffering. These structures can reduce noise levels along roads and highways, as vegetation 'naturally' blocks high frequency sounds while the supporting structure can help to diminish low frequency noise. They also reduce noise levels by reflecting, refracting as well as absorbing acoustic energy. [23]

Other amenities

Other street infrastructure and amenities, such as bike racks, benches, trash receptacles, lighting can add to better utility of the added public space.

These improvements are discussed with more details in Section 3.2 - Cycling Infrastructure and Section 3.4 - Placemaking Improvements.

Improvement Locations

Extending the public space at Village Square will require closing of E. Hoffman Avenue from Wellwood Avenue for about 110 feet towards east, on the north side of the LIRR tracks. Additionally, the space below the LIRR trestle on the opposite side will also be incorporated in the extended public space.

Activation of this space can be an added attraction to the downtown and would create a better connection between the downtown, south and north of Hoffman Avenue and the LIRR.

Extension of the public space at the Village Square will include:

- Addition of 3,260 sq. ft. of public space by repurposing the right-of-way on E. Hoffman Avenue south of the existing Village Square;
- Addition of sidewalk to connect the sidewalk on east side of N. Wellwood Avenue to space under the LIRR trestle on east side of the intersection; and
- Vertical gardens on two LIRR trestles located opposite Village Square.

Implementation Considerations

Design / Engineering

Traffic conditions will need to be considered to update the traffic signal at E. Hoffman Avenue and Travis Street, taking into account the proposed new two-way traffic pattern on E. Hoffman between Village Square and Travis Street. A traffic capacity analysis will be needed to determine the optimal signal timings for the intersection.

Stakeholder Coordination

E. Hoffman Avenue north of the tracks is maintained by the Village. Since there will be a change in the traffic patterns around the Village Square, especially in terms of access to the Second District Court, they should be engaged during final design of the improvements. Coordination with the Long Island Rail Road will be required to activate the space under the train trestle and to install vertical gardens on the two trestles opposite the Village Square.

ROW / Parking / Utility Relocation Impacts

Closure of a small section of E. Hoffman Avenue and redesign of the E. Hoffman Avenue traffic flow will need redesign of the parking spaces. Further, utility companies should also be engaged to address possible relocation of utilities, if necessary, before paving of the square extension.

The improvement will lead to loss of six parking spaces immediately south of the Village Square. However, redesign of the parking from angled parking to 90-degree parking can result in additional four parking spaces, resulting in net loss of two parking spaces.

Figure 36 and Figure 37 show the existing and proposed parking layout to accommodate the new two-way traffic flow on E. Hoffman Avenue between the extended Village Square and Travis Street. Figure 38 illustrates the proposed improvements including Village Square extension and activation of areas under the LIRR train trestle.

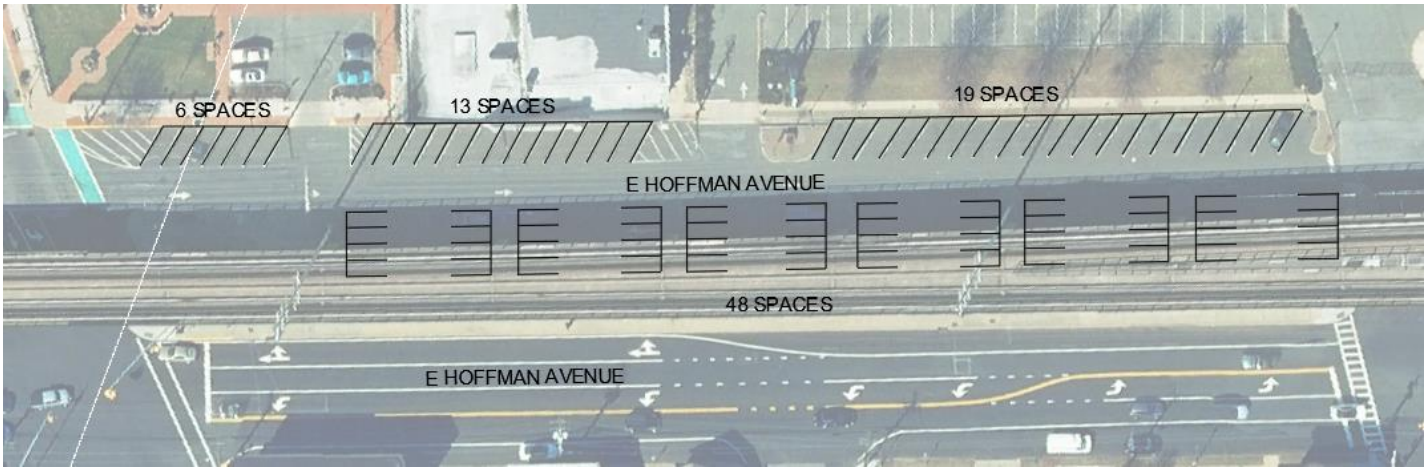


Figure 36: Existing Parking Layout at Village Square and E. Hoffman Avenue

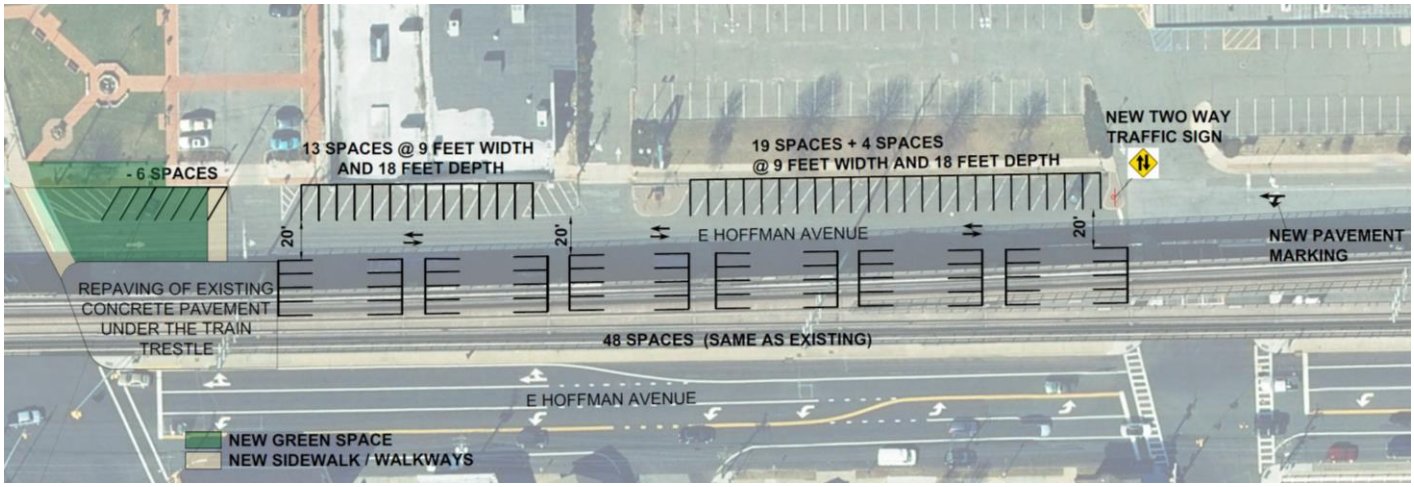


Figure 37: Proposed Parking Redesign of E. Hoffman Avenue between extended Village Square and Travis Street

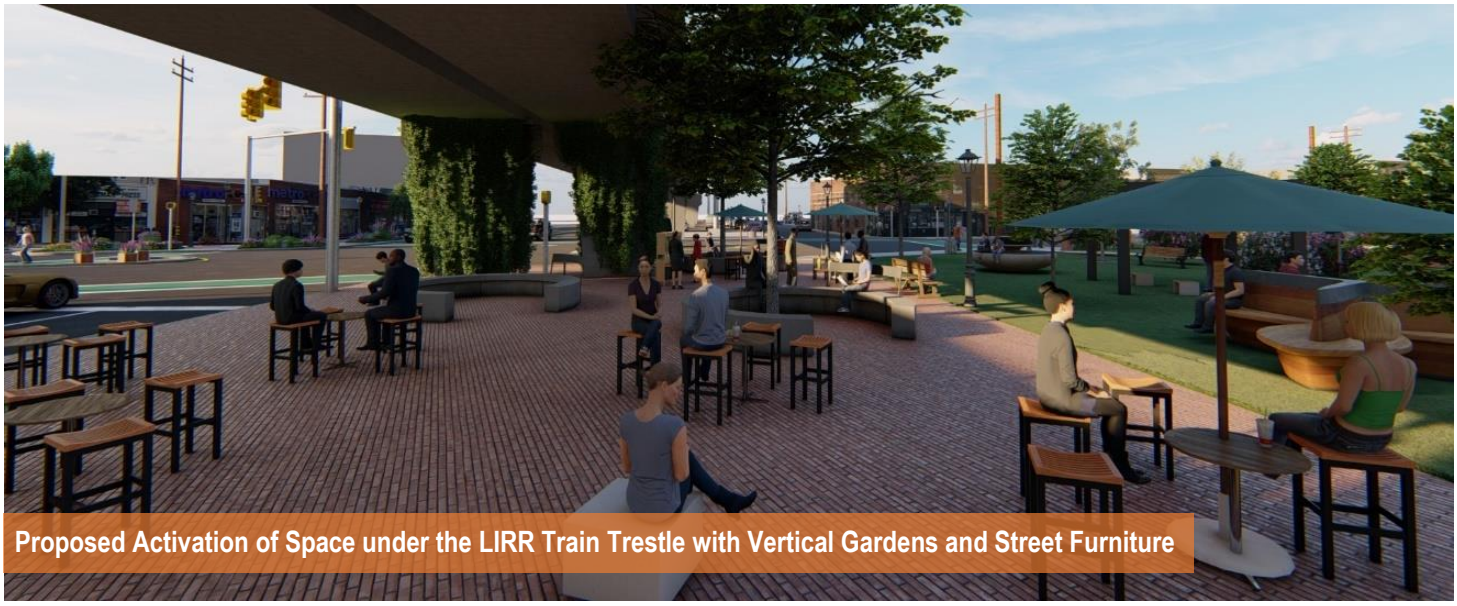


Figure 38: Renderings showing Features of the Proposed Village Square Extension

3.4 Placemaking Improvements

Placemaking is both a philosophy and a practical process for transforming public spaces. [24] Placemaking has the power to transform our local communities and generate pride and a sense of belonging that translates into sustainability, economic development and increased quality of life. [25]

> ***If you plan cities for cars and traffic, you will get cars and traffic.***
>
> ***If you plan for people and places, you will get people and places.***
>
> Fred Kent, Founder, Project for Public Spaces

The Village should prioritize design choices that make its streets and public spaces safer and more comfortable for everyone – pedestrians, bicyclists as well as auto drivers.

The public spaces can be redesigned and retrofitted to offer multi-use destinations. Extending Public Space at Village Square (discussed in Section 3.3) is one of the major placemaking improvements the Village can consider for the downtown. Some examples of placemaking in context of transformation of public spaces are discussed in National and International Best Practices, available in Appendix B.

This section 3.4 discusses other improvements that could help in activating the streets and public spaces within the downtown and creating a distinct downtown identity.

Village/Downtown Gateways

The purpose of the gateway is to provide an overall image of the downtown, build a community brand, mark edges or entry points, and give information about directions, destinations, or the downtown in general. Currently, a gateway exists at S. Wellwood and Montauk Highway.

Additional gateways can be added on Hoffman Avenue, at S. 5th Street on the west and at S. Alleghany Ave on the east. Another gateway can also be added on N. Wellwood Avenue at Fremont Street.

Streetscape Lighting

Appropriate quality and placement of lighting can enhance the streetscape environment as well as increase comfort and safety. Proper street lighting also illuminates pedestrian crosswalks and can reduce glare to motorists.

Downtown Lindenhurst, particularly along Wellwood Avenue and Hoffman Avenue, has night-time pedestrian activity due to commercial and transit-related activities. Better designed streetlights and building lights can enhance the ambiance of these area and visibility of pedestrians and bicyclists by motorists. Night-time pedestrian crossing areas, such as the alleyway connecting the Lindenhurst LIRR Station to the commuter lots north of E. Hoffman Avenue, may be supplemented with brighter or additional lighting. This includes lighting pedestrian crosswalks and approaches to the crosswalks.

Pedestrian-level lighting placed over the sidewalks along Hoffman and Wellwood Avenues can improve pedestrian comfort, security, and safety. Pedestrian-scale lighting is lower in height (12-16 feet) than standard street lighting and is spaced closer together (~ 60 feet). [27] In 2004, the Village installed decorative pedestrian level street light poles within the downtown. The Village should consider expanding similar lighting on Hoffman Avenue along the following sections: W. Hoffman between N. 4th Street and School Street, W. Hoffman Avenue between S. 4th Street and S. 2nd Street, E. Hoffman Avenue north of the tracks – east of vacant Waldbaum's site to N. Alleghany Avenue. Further, the Village should consider adding brighter lighting in the pedestrian alleyway next to Heling Creek that connects the LIRR train station to the parking lot on west side of the creek.

It was also noted by the community and stakeholders that the streets needed brighter lighting. The Village should consider installing LED bulbs which are brighter and more energy efficient.

Street Furniture

Well-designed walking environments are enhanced by urban design elements and street furniture, such as benches, bus shelters, and trash receptacles. Street furniture can enliven the Village commercial and transit corridors – Hoffman and Wellwood Avenues, by making sidewalks and adjacent places functional and pleasant places for pedestrians.

The Village should consider adding benches and trash receptables along the Hoffman and Wellwood Avenues, and at the extended Village Square. It was noted within the community input obtained during this study that the waste bins were found unsightly and overflowing from time to time,

which detracted from the curb appeal. Suggestion were made to introduce solar compacting receptacles, which have an enclosed design and also reduce the need for bag changes.

Streetscape Beautification

The Village can also consider adding light pole banners or flower baskets on the decorative light poles installed along the Hoffman and Wellwood Avenues.

Figure 39: Examples of Street Pole Banners and Flower Baskets

Streetscape Upkeep and Maintenance

Street and sidewalk improvements help support walkability and add to the aesthetics of the streetscape, that often results in a greater sense of neighborhood pride. However, it is important to consider who is responsible to maintain these improvements over time. Concerns regarding streetscape upkeep and maintenance were also brought up by the community during LindenWalks as well as through input submitted on the online public engagement tool.

Public and privately sponsored projects must have an agreed-upon maintenance strategy to move forward with permitting and installation. It can be built in the process as a requirement to receive the Village / County permit.

Replacement of Advertisements on the LIRR Trestle

Current overhead signage on the LIRR trestles may be revisited at the intersection of Hoffman and Wellwood Avenues. The advertisements signs are put up on the trestles through an agreement between the advertiser and LIRR. Signage at this location should be considered as a representation of the downtown. The Village can coordinate with LIRR to understand their advertisement policies and fees and deliberate on replacement of the advertisements.

Implementation Considerations

Urban Design / Engineering

- A consistent level of lighting along key roadways and on both sides of the street are recommended. Parking lots, pedestrian walkways and crosswalks should be well-lit.
- The design and location of the gateways will require engineering and design considerations.
- Gateway signage should have readable lettering and a style consistent with Village's design guidelines. Landscaping can also be added to enhance the gateway area as space permits.
- Signage and landscaping must be designed and installed in a manner that doesn't restrict sight lines or impair visibility of pedestrians and vehicle traffic.
- High-quality street furniture should be considered for use. That shows that the community values its public spaces and is more cost-effective in the long run.
- A maintenance plan for the streetscape improvements should be laid out at the outset of the projects. This might be a good opportunity for public private partnerships.

Stakeholder Coordination

Upgrading street lighting and the addition of gateways on Hoffman Avenue on south side of the tracks will need coordination with Suffolk County Department of Public Works. Coordination with Tritec will be needed to ensure that the streetscape lighting along Hoffman Avenue between S. Smith Street and S. Pennsylvania Avenue, is consistent with the existing street lighting and/or aligns with any proposed improvements.

Coordination with Long Island Rail Road will be required to understand their advertisement policies and explore the possibility of replacement of the advertisements placed on the trestle at the intersection of Hoffman and Wellwood Avenues.

The Village community and stakeholders should be engaged in designing the gateways and other streetscape beatification measures, for example the Mayor's Beautification Society of Lindenhurst, Chamber of Commerce, Economic Development Committee, Schools, etc. can be involved in the process.

3.5 Parking Improvements

Parking Redesign on South Wellwood Avenue

Concerns with diagonal parking were raised during the various public engagement opportunities offered to the stakeholders and the community. Requests were made to change the existing layout to either parallel parking, or changing the angle of the parking stalls, as vehicles backing out of diagonal parking have limited visibility of approaching vehicles.

Figure 40 shows the existing parking layout along S. Wellwood Avenue. Current angled parking spaces are 10.5 feet wide, 18 feet long and angled outward from the curb at 58-60 degrees. A total of 85 parking spaces are available.

Two scenarios were considered for reconfiguring the parking layout the angled parking spaces between Hoffman Avenue and Gates Avenue on S. Wellwood Avenue:

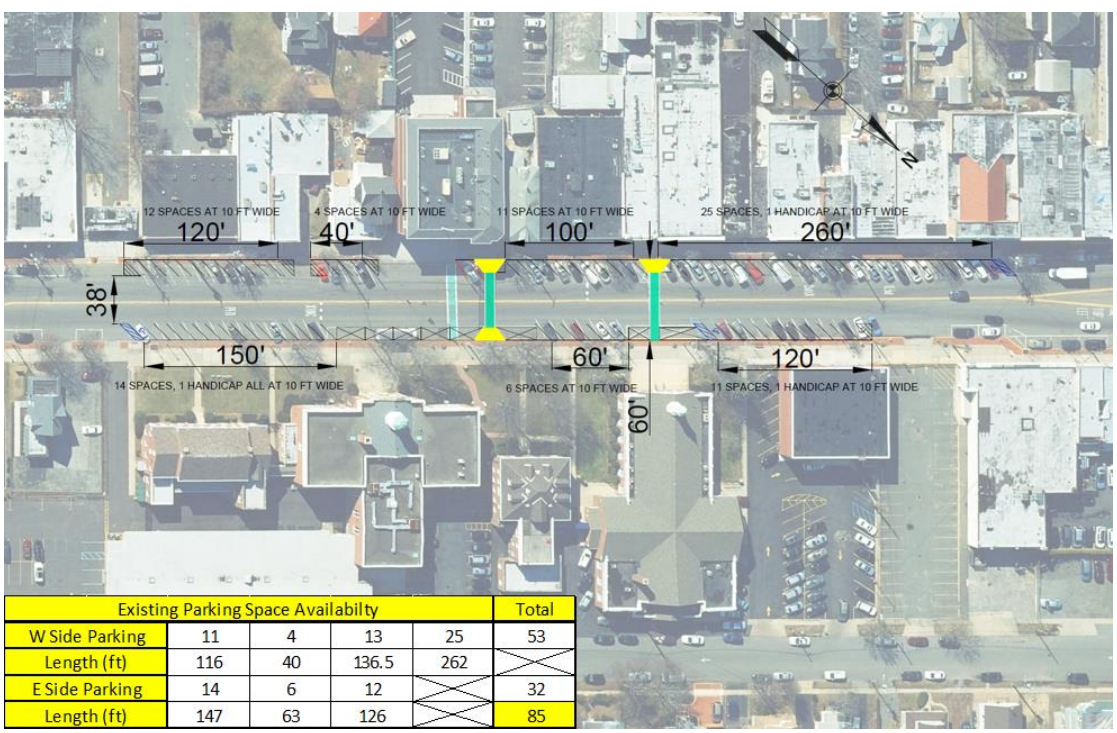
- Option 1 considers reangling of parking from the current angle of 58-60 degrees to a 45-degree angle.
- Option 2 proposes the removal of angled parking and the installation of parallel parking with the extension of the median.

Curb bulb-outs and crosswalk relocation proposed in sections ahead have been considered while these two options were reviewed.

Potential benefits from the parking reconfiguration include:

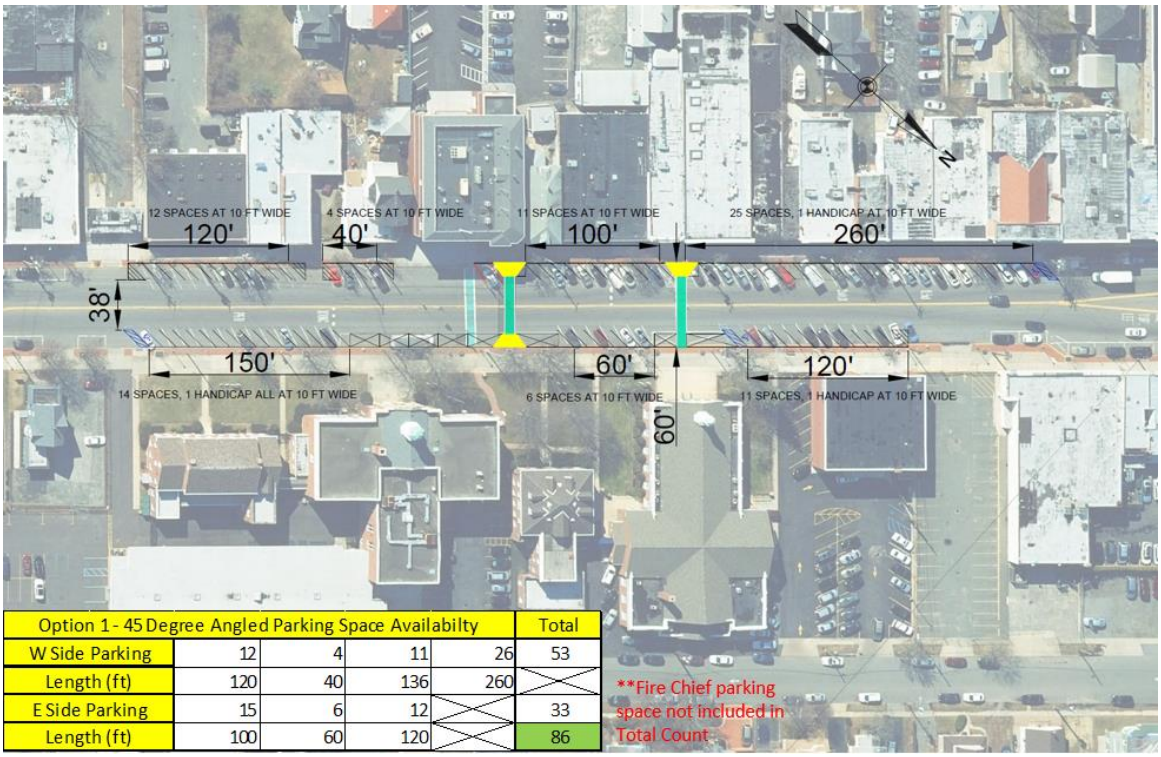
- Reduction of the parking angle provides drivers within parking stalls to have a more direct view of oncoming traffic. As a result, blockages due to other vehicles will be reduced.
- Drivers along S. Wellwood Avenue will have better views of vehicles backing out as well.

Figures 41 and 42 illustrate the proposed options for parking reconfiguration along S. Wellwood Avenue.



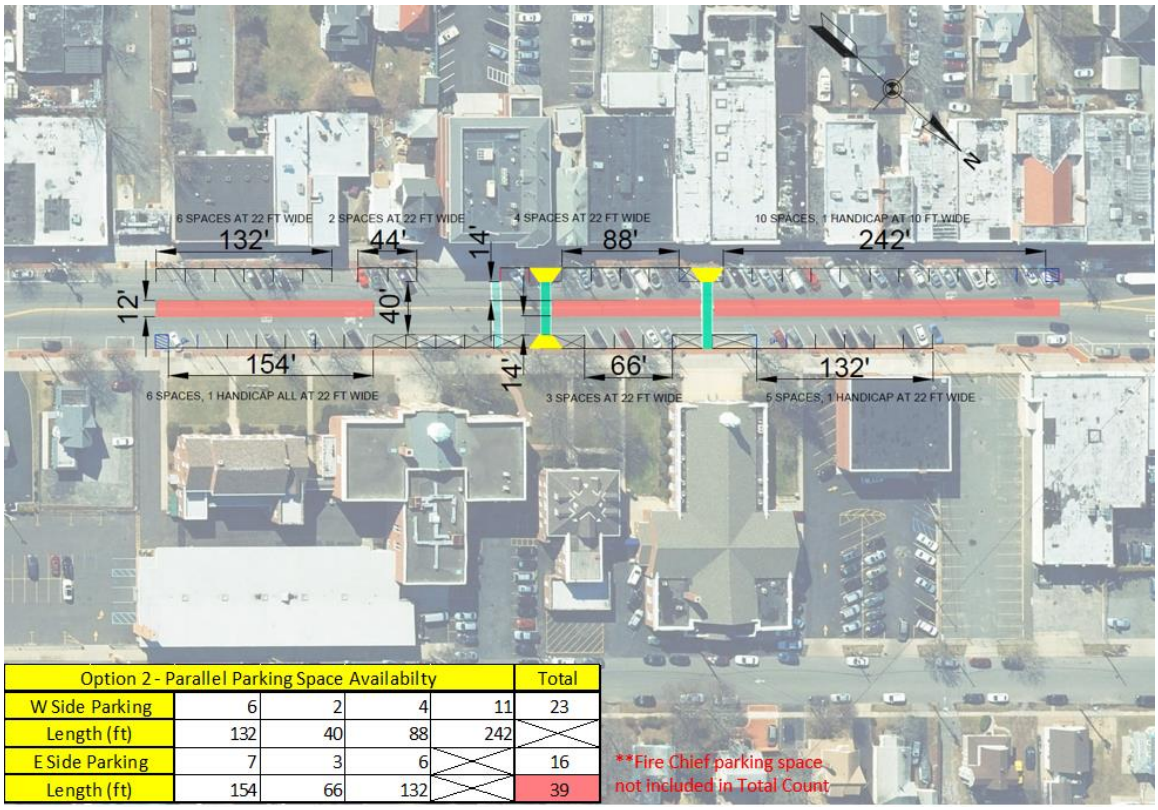
Existing Parking Space Availabilty					Total
W Side Parking	11	4	13	25	53
Length (ft)	116	40	136.5	262	
E Side Parking	14	6	12		32
Length (ft)	147	63	126		85

Figure 40: Existing Angled Parking Layout on S. Wellwood Avenue



Option 1 - 45 Degree Angled Parking Space Availabilty					Total
W Side Parking	12	4	11	26	53
Length (ft)	120	40	136	260	
E Side Parking	15	6	12		33
Length (ft)	100	60	120		86

Figure 41: Proposed Parking Reconfiguration – Option 1



Option 2 - Parallel Parking Space Availabilty					Total
W Side Parking	6	2	4	11	23
Length (ft)	132	40	88	242	
E Side Parking	7	3	6		16
Length (ft)	154	66	132		39

Figure 42: Proposed Parking Reconfiguration – Option 2

Implementation Considerations

Parking Impacts

Design Option 1 – 45 Degree parking would result in 85/86 parking spots (+/-1 depending on how close some parking spaces can be moved towards driveway entrances). 45-degree stalls at 10 ft width allow for clearer and safer views for drivers who are backing out of their stalls to see approaching traffic. The introduction of curb bulb-outs would lead to the loss of at least four parking spaces. However, a reduction in parking width and movement of some spaces closer to driveways may allow a total of 86 parking stalls (one space which is not included in the count is available for the fire chief), one parking stall more compared to the presently available 85 stalls.

The Village can also consider back-in angled parking in place of head-in angled parking. With back-in parking, the departing driver has a better view of approaching traffic, eliminating the problem of limited visibility when backing up into traffic with head-in parking. Helpfully, the open car door's swing directs riders straight to the curb, and the trunk is conveniently curbside for loading. A back-in angled parking pilot in the City of Somerville, MA showed a 15% reduction in speed as well as easier and safer parking. [27]

Design Option 2 – All angled parking spaces on S. Wellwood Avenue converted to parallel parking would result in a total of 39 spaces at 10 ft wide and 22 feet long. There would be a loss of 46 spaces from the existing condition. Parallel parking would provide enough room for an extension of the existing median to the south at a width of 12 ft, and 14 ft traffic lanes on either side (a median opening would be provided in front of the fire house) This option allows for safer backing maneuvers for cars parking, improved visibility of parking vehicles for approaching traffic and improved sightlines for pedestrian travel crossing S. Wellwood Ave with the inclusion of curb bulb-outs.

Option 2 provides enhanced safety benefits. While the loss of 46 parking spaces – amounting to about 3.5% of all (non-private) downtown parking spaces – is relatively small compared to total parking available, those 46 parking spaces are highly desirable from the perspective of being convenient for patrons to the commercial establishments and does provide some level of traffic calming. This proposal will require further vetting with the Village, business community and residents before committing to changing the parking from diagonal to parallel.

Stakeholder Coordination

S. Wellwood between Hoffman Avenue and Gates Avenue is a village road, and the Village highway staff will be responsible for maintenance of any reconfigurations. However, changes in parking availability may impact businesses and institutions located along that stretch. Outreach and engagement of these stakeholders should be considered in the process.

Other Downtown Parking Improvements

The parking utilization study conducted as part of this study found that there is adequate parking available within the downtown to support current uses. However, community members and business owners have repeatedly expressed the need for additional parking in the downtown area.

The Village should consider measures that improve the design of the parking lots as well as general awareness about location and access to the existing downtown parking lots.

Improvements to the existing parking lots can include resurfacing and restriping the lots, maintenance of the landscaping, improved lighting and signage directing motorists to the parking lot location. Parking lots that can be safely accessed, maintained and well-lit are more conducive to use. Better pedestrian access to parking is discussed ahead in Section 3.6. The addition of electric vehicle charging stations at key municipal and commuter parking lots should also be considered, in view of the recent mobility trends and the expected strong increase in electric vehicle sales. [28]

Awareness about the parking locations can be enhanced by development of a downtown parking map. Each parking lot can be designated a unique ID either numerical or alphabetical or based on its street / landmark location. This map can be displayed along Hoffman and Wellwood Avenues at entry points of the downtown as well as on the Village website for potential visitors seeking parking information. Additionally, improved wayfinding signage for parking can address the perceived parking deficiency and lead to a better utilization of the available parking spaces in the downtown area. Figure 43 shows downtown parking map and wayfinding signage used in Kirkland, WA.

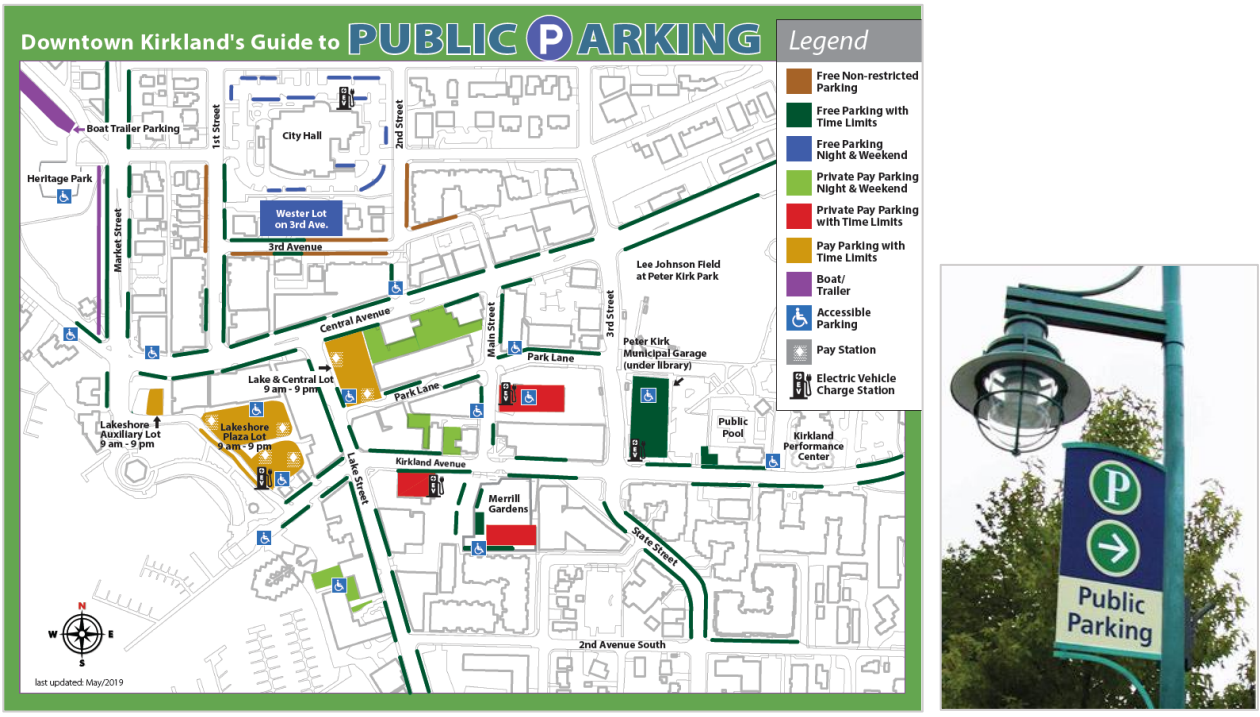


Figure 43: Downtown Public Parking Map and Wayfinding Signage in Downtown Kirkland, WA

Parking Benefits District

A wide range of parking management strategies are available to municipalities today, including pricing, better wayfinding, or the shared use of parking spaces. The Village of Lindenhurst can explore establishing a parking benefit districts to manage the downtown parking demand and, at the same time, obtain funds for sustainable transportation improvements in the Village's downtown area.

A parking benefit district (PBD) is a defined geographic area, for example a municipality's downtown area, designed to improve the availability of on-street parking while promoting walking, cycling and transit use. Collected parking revenues are then partly or fully invested to fund a wide range of transportation related improvements within the PBD. Raised funds can be used for a variety of purposes, such as investments in landscaping, benches and lighting, or the support of pedestrian, cycling or public transit infrastructure.

In predominantly residential areas, parking meter revenue can even be used to reduce property taxes for residents within the district.

Finding the 'right' price remains however a challenging task. Ideally, the (hourly) parking rate is set to keep approximately 15% of parking spaces vacant. This avoids lengthy parking spots searches which are not only the reason for immense frustration among drivers, but also a major contributor to traffic congestion (30% of vehicular traffic in downtown areas is estimated to account for such searches), emissions, and loss of time.

Case-studies of downtowns and cities who have successfully implemented PBDs and its applicability to Lindenhurst downtown is discussed in National and International Best Practices, available in Appendix B.

3.6 Downtown Connectivity

Connection to Transit

Transit access is an important part of the vision of a compact, mixed-use place that is more walkable and less auto oriented.

Currently, the Long Island Rail Road station is located about 1,200 feet (about 4-5-minute walk) from the downtown center at intersection of Hoffman and Wellwood Avenue. The first stairs on the west side are located just 760 feet (about 3-4-minute walk) from the Hoffman and Wellwood Avenue intersection. When compared to other Suffolk County downtowns this is a smaller walk. Babylon LIRR is about 5-6-minute walk from the downtown center and Patchogue LIRR is about 7-8-minute walk from its downtown. However, with the potential redevelopment of the vacant Waldbaum's site, there is an opportunity to enhance the transit access. Depending on the development, pedestrian enhancements at the intersection of Travis Street and Hoffman Avenue can be considered.

Presently, Suffolk County Transit provides bus service through its S20 Route that runs along E. John Street, N. Wellwood Avenue, and W. Hoffman Avenue within the downtown. Currently, none of the stops within the downtown have bus shelters or prominent wayfinding. Upgrading the bus stops to include a bus shelter can be an improvement that the Village can consider.

The Village can work with the MTA/LIRR and Suffolk County Transit to see that support infrastructure at the train station and bus stops is also a priority for improvement.

Pedestrian Connectivity through Alleyways

S. Wellwood Avenue from Gates Avenue to Hoffman Avenue is nearly 1,200 feet with no intersecting streets. Also, N. Wellwood Avenue from W. John Street to W. Hoffman Avenue is about 760 feet with no intersecting streets on the west side. Developing pedestrian connections / alleyways along Wellwood Avenue can help with providing pedestrian access to Wellwood Avenue from parking and developments between School Street and Wellwood Avenue as well as between Hoffman Avenue and Gates Avenue on either side.

Currently, there is a parking lot on west side of N. Wellwood Avenue between Mr. G's Pizzeria and Elite Dance Studio that connects to the bigger parking lot for Lindenhurst Commons along W. Hoffman Avenue and a small parking lot along School Street behind Tennessee Jeds restaurant. Better wayfinding signage, lighting and general upkeep will bring all three parking lots to the attention of the Lindenhurst community and its visitors. These measures will improve user's feelings of safety and security as well as help in accessing and navigating to-and-from within these three parking lots in the center of downtown Lindenhurst.

On the west side of S. Wellwood Avenue next to the Fire Department, an alleyway offers pedestrian access from Main Street to and from a rear municipal parking lot on S. 1st Street. This alleyway on the north side of the firehouse was completed in 2015. It is in good condition and well maintained. Another municipal parking lot, located between S. 1st Street and S. 2nd Street, is only about a one-minute walk away (approx.130 feet). The addition of a new walkway, as illustrated in Figure 44, connecting the existing pedestrian alleyway that wraps around the firehouse to the sidewalk on S. 1st Street, with a new marked crosswalk on S. 1st Street, added lighting and well-placed wayfinding signage can encourage the community to use both municipal lots conveniently.

On the east side of S. Wellwood Avenue there is pedestrian walkway next to the church connecting to S. High Street. However, a pedestrian access through the former CVS lot, proposed to be occupied by Sand City Brewing Co., offers a better placed connection to S. High Street that is closer to the municipal lot located at the corner of S. High Street and E. Hoffman Avenue. The Village should encourage the development of a well-lit, safe and welcoming pedestrian walkway within the redeveloped site plan for the former CVS lot to retain connectivity between the S. High Street municipal parking lot and S. Wellwood Avenue.

Figure 44: Addition of Walkway and Crosswalk for better access to the S. 1st Street Municipal Parking Lot

Wayfinding / Signage Improvements

Pedestrian-oriented maps and directional signs enhance pedestrian circulation and sense of place.

Figure 45: Directional Sign Sample based on Walk [Your City] Signs

Pedestrian-oriented maps usually show the pedestrian's current location and the surrounding streets and destinations, such as parks, trails, transit centers, businesses, cultural resources, parking, other community amenities and government offices. Information kiosks can be used to display interactive pedestrian-oriented maps.

Directional signs usually list one or more destinations along with an arrow, and maybe the estimated distance to the destination.

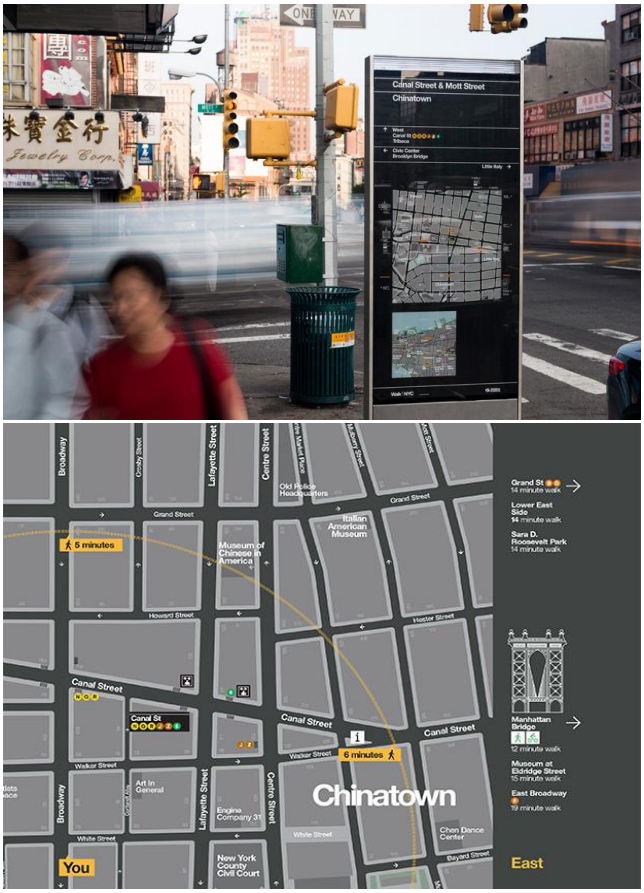


Figure 46: Information Kiosk, WalkNYC Wayfinding Kiosk

The signage may be planned, implemented and maintained either by the Village or through collaboration between the Village and the Lindenhurst Chamber of Commerce or Business Improvement District, or other downtown business associations.

Wayfinding / signage improvements may offer the following benefits:

- Wayfinding signs inform pedestrians about nearby destinations (e.g., stores, businesses, transit centers, parks, etc.), and likely increase the foot traffic destined to these destinations.
- Communities that provide information about places to walk may enjoy higher rates of walking.

Designated Downtown Trails

The Village of Lindenhurst has several points of interest in its downtown – all of which accessible by foot. The Village should consider the development of designated downtown trails. Such a trail could have a heritage focus by connecting, for example, historically relevant sites, such as the 1901 Restored Railroad Depot and Freight and the Old Village Hall Museum as well as downtown churches and other landmarks, such as the Village Square and Fellers Pond Park. Another trail could promote downtown dining and entertainment and inform about the most convenient walk to get to these places.

The development of designated downtown trails is an opportunity to engage the community and seek their input on the points of interests which should be included. Designated trails could be part of the above-described information kiosk system, and they could also be displayed on the Village website or lindywalks.net, the website that informed about the progress of this downtown walkability improvement study.

Figure 47 shows an award-winning example of an Esri Story Map which was developed for the City of Heraklion in Greece. It features four designated trails: a monuments route; a spiritual route; a museum route; as well as an eat & drink trail.

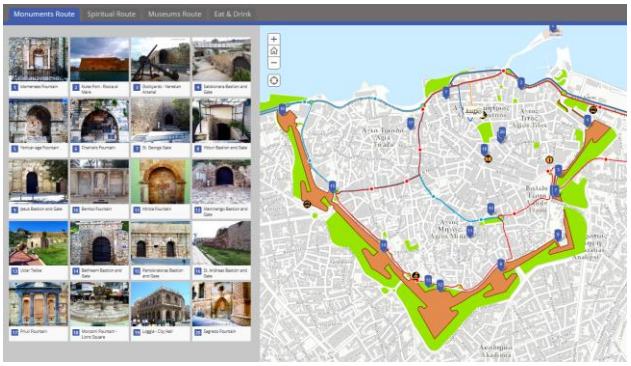


Figure 47: Award-winning Trail Map of Heraklion, Greece

Shuttle Connection – Downtown and Beyond

The Village can consider developing a shuttle service providing connections within the downtown and beyond, potentially to waterfront destinations. Such a service can offer rides to downtown destinations like Village Square, restaurants on Wellwood Avenue, LIRR Station, Fellers Pond Park, Municipal Parking Lots, etc. as well as waterfront destinations like Shore Road Park, and Charles J Cowan Marina.

Figure 48: Conceptual Stop Locations for Lindenhurst Shuttle Service

A similar system was launched in Patchogue Village last summer, where a transportation company launched free app-based ride-sharing service using enclosed golf carts adorned with the logos of local businesses.

Figure 49: Ride-sharing Shuttle Service Vehicle in Patchogue Village

Implementation Considerations

Urban Design / Engineering

- A consistent village-wide approach should be taken for the signage plan, including types of signs, maps and information kiosks, to achieve a uniform sense of place and avoid confusion.
- The design features used in the signage should be respectful of the neighborhood context and minimize visual intrusion
- Pedestrian-oriented maps / kiosks should be located at key points in the downtown. The Village Square can be a good central location for such improvements.
- Directional signs can be placed at strategic locations with a goal of minimizing the overall number of signs, but without losing their effectiveness.
- Less traveled areas within the downtown may still include some basic informational signs.
- When appropriate and feasible, new technologies such as interactive and virtual displays with event or other real-time information can be used.

Stakeholder Coordination

Installation of special streetscape signage / kiosks may require a highway work permit from the Suffolk County Department of Public Works for work along Hoffman Avenue, depending on the scale of the improvement.

Community organizations engaged in planning, design, or sponsoring the signage projects may work together to lay out the signage maintenance plan to cover the ongoing maintenance and liability at the onset of the project.

Section 4 Implementation Plan

4.1 Walkability Improvements Phasing

Assessment Objectives and Criteria Definitions

Qualitative assessment of the walkability improvements is conducted to determine implementation phasing for the improvements. Twelve criteria were identified and used to evaluate the performance of the improvements discussed in sections 3.1-3.5, on how they advance the four objectives, as listed in Table 3. Each criterion for the objectives 1–3 is rated at either good, fair level, or no improvement over existing conditions, depending on how each met the criteria and supported the overall objective. Each good rating is scored at 2 points, fair at 1 point and no improvement at 0. Criteria 4.1 and 4.2 are rated at either high (scored at 2 points), moderate (scored at 1 point) or low (scored at -1), based on the level of public support for the design alternative and its cost effectiveness. Additionally, 0 points are allocated to design alternatives whose performance depends on the final design and cannot be evaluated based on current data availability. Criteria 4.3 and 4.4 are rated at either high (scored at -1 points), moderate (scored at 1 point) or low (scored at 2). The walkability improvements with higher right-of-way / parking impacts and higher extent of multi-stakeholder coordination requirement are scored lower and vice-versa. Ratings for each criterion and total performance scores for each improvement is available in the qualitative assessment matrix ahead.

Table 3: Qualitative Assessment – Objectives and Criteria

Objective 1: Supports / Creates an Attractive, Walkable Environment	
Criteria 1.1: Improves Streetscape's Aesthetic Value	The design alternative improves the attractiveness of the streetscape in terms of separation from traffic, pedestrian scale lighting, and street landscaping.
Criteria 1.2: Expands / Activates public space and street amenities	The design alternative increases the availability of public space and street amenities, in terms of access / availability to green space and other public spaces, street furniture and other amenities.
Objective 2: Improves Multi-modal Access and Safety	
Criteria 2.1: Improves Pedestrian Access and Safety	The design alternative introduces or improves pedestrian facilities (e.g., sidewalks, street crossings, ramps, pedestrian signals).
Criteria 2.2: Improves Bicycle Access and Safety	The design alternative introduces or improves bicycle facilities and wayfinding (e.g., bike lanes, signage, parking at key locations).
Criteria 2.3: Reduces Multi-modal Conflict	The design alternative reduces potential conflicts between transportation modes (e.g., driveways, buffers, separation of facilities) and/or discourages speeding.
Criteria 2.4: Improves Traffic flow and intersection operations	The design alternative minimizes adverse impacts on traffic flow and intersection operations.
Objective 3: Supports Economic Development within the Downtown	
Criteria 3.1: Supports better access and management of parking	The design alternative manages parking supply, pricing and access to parking, to minimize parking while accommodating business and neighborhood needs.
Criteria 3.2: Improves Downtown Connections	The design alternative improves connections to and between businesses, neighborhoods, nearby destinations, transit stops, and the downtown area.
Objective 4: Supports the Community Vision and Implementable by the Village	
Criteria 4.1: Public Support	The design alternative aligns and advances the community's vision and aspirations.
Criteria 4.2: Cost Effectiveness	The design alternative can achieve the desired impact / outcomes at a reasonable cost.
Criteria 4.3: Right of way Impacts / Parking Impacts	Implementation of the design alternative will need additional right-of-way and/or impacts parking availability / layout.
Criteria 4.4: Multi-Stakeholder Coordination	Implementation of the design alternative requires multi-stakeholder coordination and/or approvals.

Table 4: Qualitative Assessment Matrix – Pedestrian Safety Improvements

Walkability Improvements	Pedestrian Safety Treatments at intersection of Hoffman Avenue and Wellwood Avenue				Pedestrian Safety Treatments on Wellwood Avenue				
Evaluation Criteria / Improvements / Design Component	Introduction of Bulb-outs at S Wellwood Avenue and Hoffman Avenue Intersection	Elimination of Right-turn Lane and Introduction of No U-Turn on S Wellwood Avenue at Hoffman Avenue	Median extension to create safe traffic island	Pedestrian signal heads on all crosswalks at Hoffman and Wellwood Avenues Intersection	Addition of Curb Bulb-outs, Pedestrian Warning Signs + RRFBs at Fire Department	Addition of Curb Bulb-out, Pedestrian Warning Signs + RRFBs at Our Lady of Perpetual Help Church	Relocation of crosswalk at Auburn Street, addition of curb bulb-outs, pedestrian warning signs + RRFPs	Addition of crosswalk at Bristol Street, addition of curb bulb-outs, pedestrian warning signs + RRFPs	Addition of curb bulb-outs at John Street with added pedestrian warning signs and pedestrian signal heads.
Objective 1: Supports / Creates an Attractive, Walkable Environment									
1.1 Improves Streetscape's Aesthetic Value									
1.2 Expands / Activates public space and street amenities									
Objective 2: Improves Multi-modal Access and Safety									
2.1 Improves Pedestrian Access and Safety									
2.2 Improves Bicycle Access and Safety									
2.3 Reduces Multi-modal Conflict									
2.4 Improves Traffic flow and intersection operations									
Objective 3: Supports Economic Development within the Downtown									
3.1 Supports better access and management of parking									
3.2 Improves Downtown Connections									
Objective 4: Supports the Community Vision & Implementable by Village									
4.1 Public Support									
4.2 Cost Effectiveness									
4.3 Right of way Impacts / Parking Impacts									
4.4 Multi-Stakeholder Coordination									
Performance Score	13	12	14	14	15	15	13	13	13

Performance Rating for Objectives 1 - 3
- Good
- Fair
- No Improvement over Existing Conditions
- Worse

Performance Rating for Objectives - 4.1, 4.2
- High
- Moderate
- Unknown / Depends on Final Design
- Low

Performance Rating for Objectives - 4.3, 4.4
- Low - None
- Moderate
- High

Table 5: Qualitative Assessment Matrix – Placemaking, Pedestrian/Bike Connectivity, Parking & Wayfinding Improvements

Walkability Improvements		Placemaking Improvements at Public Spaces and Streets					Pedestrian / Bike Connectivity Improvements		Parking Redesign	Wayfinding Improvements
Evaluation Criteria	Improvements / Design Component	Extension of Village Square	Streetscape Improvements (landscaping, benches, better lighting and trash receptacles)	Introduction of Bike Racks near Village Square	Vertical Gardens on LIRR Trestles opposite Village Square	Addition of Village Gateway and Replacement of LIRR Trestle Advertisements	Establishing Bike connectivity from Hoffman Avenue to S Wellwood Avenue via Travis Street	Upgrading / Adding 4 miles of sidewalks and 55 curb ramps	Reconfiguration of Angled Parking on S. Wellwood Avenue	Wayfinding Signage for Parking, and other downtown destinations
Objective 1: Supports / Creates an Attractive, Walkable Environment										
1.1	Improves Streetscape's Aesthetic Value									
1.2	Expands / Activates public space and street amenities									
Objective 2: Improves Multi-modal Access and Safety										
2.1	Improves Pedestrian Access and Safety									
2.2	Improves Bicycle Access and Safety									
2.3	Reduces Multi-modal Conflict									
2.4	Improves Traffic flow and intersection operations									
Objective 3: Supports Economic Development within the Downtown										
3.1	Supports better access and management of parking									
3.2	Improves Downtown Connections									
Objective 4: Supports the Community Vision & Implementable by Village										
4.1	Public Support									
4.2	Cost Effectiveness									
4.3	Right of way Impacts / Parking Impacts									
4.4	Multi-Stakeholder Coordination									
	Performance Score	16	15	15	8	5	15	14	13	16

Performance Rating for Objectives 1 - 3
Good
Fair
No Improvement over Existing Conditions
Worse

Performance Rating for Objectives - 4.1, 4.2
High
Moderate
Unknown / Depends on Final Design
Low

Performance Rating for Objectives - 4.3, 4.4
Low - None
Moderate
High

Assessment Results

The individual components of the walkability improvements scored within a range of 5 to 16 points. The improvements/ components that scored high (14-16) include the following:

- Extension of the Village Square
- Addition of curb bulb-outs, pedestrian warning signs + RRFBs at Fire Department and Our Lady of Perpetual Help Church
- Bike connectivity from Hoffman Avenue to S. Wellwood Avenue via Travis Street
- Introduction of Bike Racks near the Village Square
- Median extension to create safe traffic island
- Improvements to 4 miles of sidewalk and 55 curb ramps
- Pedestrian signal heads on all crosswalks at Hoffman and Wellwood Avenues Intersection.
- Streetscape Improvements (landscaping, benches, better lighting and trash receptacles)
- Wayfinding signage for parking, and other destinations

The design alternative components that scored low include:

- Vertical gardens on LIRR trestles opposite the Village Square, and
- Addition of Village gateway and replacement of LIRR trestle advertisements.

Table 6 categorizes the design alternatives into immediate (up to 2 years) and mid-long term (2+ years) implementation phases based on the qualitative assessment scores.

This categorization can be further refined to reflect project readiness based on the availability of funding with the Village to implement these improvements. Nevertheless, this can be used as a tool to target and prioritize future funding applications by the Village.

Table 6: Implementation Phasing for Design Alternatives

Implementation Phase →	Short Term (up to 2 years)	Mid-Long Term (2 + years)
Pedestrian Safety Treatments at intersection of Hoffman Avenue and Wellwood Avenue	▪ Median extension to create safe traffic island and introduction of No U-Turn ▪ Pedestrian signal heads on all crosswalks at Hoffman and Wellwood Avenues Intersection	▪ Introduction of Bulb-outs at S. Wellwood Avenue and Hoffman Avenue Intersection ▪ Elimination of Right-turn Lane on S. Wellwood Avenue at Hoffman Avenue
Pedestrian Safety Treatments on Wellwood Avenue	▪ Addition of Curb Bulb-outs, Pedestrian Warning Signs + RRFBs at Fire Department ▪ Addition of Curb Bulb-out, Pedestrian Warning Signs + RRFBs at Our Lady of Perpetual Help Church	▪ Relocation of crosswalk at Auburn Street, addition of curb bulb-outs, pedestrian warning signs + RRFPs ▪ Addition of crosswalk at Bristol Street, addition of curb bulb-outs, pedestrian warning signs + RRFPs ▪ Addition of curb bulb-outs at John Street with added pedestrian warning signs, signal heads
Placemaking Improvements at Public Spaces and Streets	▪ Extension of Village Square ▪ Introduction of Bike Racks near Village Square ▪ Streetscape Improvements - landscaping, benches, better lighting and trash receptacles	▪ Addition of Street Infrastructure like benches, better lighting and trash Receptacles ▪ Vertical Gardens on LIRR Trestles opposite Village Square ▪ Addition of Village Gateway and Replacement of LIRR Trestle Advertisements
Pedestrian / Bike Connectivity Improvements	▪ Establishing Bike connectivity from Hoffman Ave. to S. Wellwood Ave. via Travis Street ▪ Upgrading / Adding 4 miles of sidewalks and 55 curb ramps	
Parking Redesign		▪ Reconfiguration of Angled Parking on S. Wellwood Avenue
Wayfinding Improvements	▪ Wayfinding Signage for Parking, and other downtown destinations	

4.2 Potential Sources of Funding

Following federal, state, county and private funding sources can be pursued by the Village to procure needed funds to support implementation of the walkability improvements recommended in this study.

Federal Funding Sources

The Village should coordinate with New York State Department of Transportation (NYSDOT), New York Metropolitan Transportation Council (NYMTC) - region's municipal planning organization (MPO), and Suffolk County to apply for federal funding. It might also be beneficial for the Village of Lindenhurst to work with their Suffolk County legislator, County representatives, state senator, or assembly member, for some sources of funding.

Surface Transportation Block Grant Program (STBG)

The Fixing America's Surface Transportation (FAST) Act converts the long-standing Surface Transportation Program (STP) into the Surface Transportation Block Grant Program. STBG offers funds for bicycle, pedestrian and recreational trails infrastructure and safe routes to school projects. Funding can also be used for access enhancements to public transportation. Estimated funding for 2020 for all states is over $12 Billion. [29]

Transportation Alternatives (TA)

The FAST Act eliminates former Transportation Alternatives Program (TAP) and replaces it with a set-aside of Surface Transportation Block Grant (STBG) program funding for transportation alternatives (TA). TA offers funding for programs and projects that advance alternatives to automobile transportation. This can include planning, design, and construction of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation; planning, design, and construction of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs; and community improvement activities, including - inventory, control, or removal of outdoor advertising. Funds can also be used for landscaping, amenities like benches and water fountains, and pedestrian scale lighting, generally if part of a larger pedestrian / bicycle plan. Estimated funding for 2020 for all states is $850 million. [30]

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The CMAQ Program funds surface transportation improvements or transportation programs that improve air quality and mitigate traffic congestion. Project / activity type can include access enhancements to public transportation, pedestrian and bicycle infrastructure. Electric vehicle infrastructure is eligible as a proposed activity. Estimated funding for 2020 for all states is about $2.5 billion. [31]

Recreational Trails Program (RTP)

The RTP is an assistance program of FHWA administered by the Office of Parks, Recreation and Historic Preservation (OPRHP) in NY State. The RTP provides funds to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses. [32] The Village can consider applying for these funds to implement recreational trails such as the proposed designated downtown trails.

Section 5310 – Enhanced Mobility for Seniors and Individuals with Disabilities

The Federal Transit Administration (FTA) Section 5310 Program is intended to enhance mobility for seniors and persons with disabilities. It provides funds for transportation projects and/or programs that serve the special needs of transit-dependent populations beyond traditional public transportation services and complementary para-transit services under the Americans with Disabilities Act (ADA).Some projects can be funded through this program include building an accessible path to a bus stop, including curb-cuts, sidewalks, accessible pedestrian signals or other accessible features, and improving signage, or way-finding technology. [33]

Bus and Bus Facilities Program

This FTA programs funds capital projects to replace, rehabilitate and purchase buses, vans, and related equipment, and to construct bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities. Eligible recipients include designated recipients that operate fixed route bus service or that allocate funding to fixed route bus operators; state or local governmental entities. The Village of Lindenhurst can work with Suffolk County Transit to secure funding for new or improved passenger shelters and bus signage. [34]

State Funding Sources

Consolidated Funding Application (CFA)

The CFA enables businesses and other entities to apply to multiple agency funding sources through a single, web-based application. For 2019, there are community and economic development resources from over 30 programs available through 11 state agencies including Empire State Development; NYS Canal Corporation; NYS Energy Research and Development Authority; Environmental Facilities Corporation; Homes and Community Renewal; Department of Labor; New York Power Authority; Office of Parks, Recreation and Historic Preservation; Department of State; Department of Environmental Conservation, Department of Agriculture & Markets, and Council on the Arts. [35]

Community Development Block Grant (CDBG): CDBG program provides grants to communities that wish to sponsor community development and economic development activities that create or retain jobs for low- and moderate-income persons, and/or address local public infrastructure and public facilities issues. Applicants for CDBG funds are required to meet Citizen Participation requirements by issuing a public notice and holding a public hearing prior to submitting an application, and NYMS program applicants must provide a formal resolution in support of the application from the municipality in which the project is located. Up to $20 million funding for CDBG programs is available for 2019 CFA round.

New York Main Street Program (NYMS): NYMS provides resources to invest in projects that provide economic development and housing opportunities in downtown, mixed-use commercial districts. A primary goal of the program is to stimulate reinvestment and leverage additional funds to establish and sustain downtown and neighborhood revitalization efforts. Up to $6.2 million funding for New York Main Street Program is available for 2019 CFA round.

Downtown Revitalization Initiative (DRI)

Since established in 2016, the Downtown Revitalization Initiative (DRI) will invest $100 million into 10 additional downtown areas across the state. One area in each of the ten Regional Economic Development Council (REDC) regions will be selected by the REDC to receive a $10 million investment that includes funding to develop a strategic investment plan and implement transformative projects. DRI areas are selected through an application process that considers each downtown's potential for transformation. For Suffolk County, the Long Island Regional Economic Development Council (LIREDC) collaborates on this funding that can help the community boost its economy by transforming its downtown into vibrant neighborhood where the next generation of New Yorkers will want to live, work and raise a family. [36]

Economic Development Purposes Grants

Economic Development Purposes Grants, administered by Empire State Development, provides funding for economic development initiatives and projects that create or retain jobs, generate increased economic activity and improve the economic and social viability and vitality of local communities. The Village of Lindenhurst, its Business Improvement District (BID), and Chamber of Commerce (COC) can apply for funds that may be used for acquisition or leasing of land / buildings, acquisition of existing business and/or assets, demolition and environmental remediation, planning and feasibility studies, site and infrastructure development. [37]

County Funding Sources

Downtown Revitalization Grants

Suffolk County Downtown Revitalization Grants help towns, villages and community organizations expand on their efforts to enhance their downtowns, attract visitors and shoppers into the area, and thereby stimulate economic activity in these important centers. Since its inception the Downtown Revitalization Grant Program has funded projects such as streetlights, sidewalks, public restrooms, off street parking lots and renovating alleyways which lead from parking areas to the main street. Eligible applicants must be local business or community groups partnering with a local municipality (town or village). [38]

Jumpstart Suffolk

Jumpstart funding is part of the county's economic development plan to foster development in and around Suffolk's downtowns. Upon identifying specific projects which will promote economic development in downtown Lindenhurst, the Village of Lindenhurst should work with their Legislator and Suffolk County Economic Development in securing Jumpstart Suffolk funds which are allocated "to encourage, foster and enhance the planning, development and/or new construction of regionally significant, vibrant

mixed-use transit-oriented development in and around downtowns, light industrial and commercial areas adjacent to downtowns or transit."

Private Development Funding

In addition to these government grants, private developments can also help fund walkability improvements within the downtown. Developers can help offset the additional burdens their projects create on infrastructure and services, though exactions either in form of impact fees, fees-in-lieu, or improvement/dedication of land. The Village can look into setting up such mechanisms to ensure that new uses created by a development is adequately served by public facilities such as parks, utilities, and roadways.

4.3 Performance Evaluation and Study Update

Performance Measures for Active Transportation

Performance measures can enable comprehensive evaluation of walking and biking projects based on qualitative and quantitative data, to track success of the pedestrian and bicycle improvements undertaken by the Village. Such findings can also be used to articulate the benefits of these improvements to the community and other stakeholders, and to support relevant funding efforts. Meaningful performance monitoring will also aid in prioritization of improvements and help inform smarter investments by the Village through data-driven measures of success. The performance measures for this study are identified and structured keeping the goals of the study in context. Table 7 lists the recommended performance measures and respective metrics with methods of evaluation.

Table 7: Active Transportation Performance Matrix

Theme	Performance Measure	Metric	Source	Frequency of assessment
Safety	Collisions / Crashes	Number of Pedestrian/Bicyclist injuries/fatalities	Suffolk County Police Department	Once a year
	Perceived Safety	Number and location of unsafe sites as perceived by the community	Walk Audits (similar to LindenWalks conducted during the study, with a revised audit)	Once a year
	Personal Security	Crime Rates	Local Police Department	Once a year
	Implemented Safety Improvements	Implementation of Safety improvements recommended under this study including traffic calming and other pedestrian safety improvements.	Village of Lindenhurst – Highway Department	Once a year
Health	Individual Activity Levels	Impact of the improvements in terms of increase in their physical activity levels by usage of the improvements as reported by the Village residents	Walk Audits (similar to LindenWalks conducted during the study, with a revised audit)	Once a year
Multimodality	Active Transportation Facility Usage	Number of people walking and biking within and to/from the downtown.	Pedestrian / Bicyclist Counts	Once a year
	Access to Transit	Pedestrian and Bike Connectivity to Transit	Site visit to observe availability and condition of continuous pedestrian and bike infrastructure access between LIRR Station and the Downtown	Once a year
	Vehicular Network Quality	Traffic LOS, speed studies	Traffic Study	Every 3 years
	Pedestrian / Cycling Network Quality	Pedestrian and Bike LOS	Traffic Study	Every 3 years

Table 7 Continued: Active Transportation Performance Matrix

Theme	Performance Measure	Metric	Source	Frequency of assessment
Accessibility	Walk Score / Bike Score	Measure of walkability / bike accessibility	www.walkscore.com	Once a year
	Pedestrian Network Gap Closure	New sidewalks and curb-ramps installed	Village of Lindenhurst – Highway Department	Once a year
	ADA Access	% of curb ramps and sidewalk network with ADA compliance	Field Survey and Analysis	Once a year
	Access to Bicycle Infrastructure	% of population within 0.25 miles of bicycle infrastructure	Analysis	Once a year
Placemaking and Community Engagement	Public Events	Number of Public event / engagement opportunities – public workshops, community meetings, targeted outreach	Village of Lindenhurst	Once a year
	Community Investment	Community participation in design, implementation and maintenance of walkability related improvements, local funds used for such improvements	VOL Economic Development Committee, Chamber of Commerce, Business Improvement District. Mayor's Beautification Committee	Once a year
	Wayfinding Improvements	New wayfinding signage installed	Village of Lindenhurst – Economic Development Committee	Once a year
Economic Development	Sales Revenue	Sales revenue for businesses within the downtown	Market Analysis	Every 2 years
	Property Value	Change in Property Values	Market Analysis	Every 2 years
	Vacancies	Commercial and Residential Vacancies	Market Analysis	Every 2 years
	Investments / Job Creation	Major new investments coming in the downtown, number of new jobs created by new developments	Market Analysis	Every 2 years

Through the use of these performance measures, the Village can evaluate and document when the goals are advanced or met, and implement projects that enhance active transportation safety, mobility, and accessibility.

Scope for Study Update

The study provides a guiding framework for pedestrian, bicycling, and place-making decisions pertaining to walkability within the downtown. The study should be updated every five years in close consultation with the Village Economic Development Committee, and it should be amended to reflect the progress made on walkability-related improvements as well as recent developments within the downtown.

The study update should include update of the existing conditions analysis and walkability maps, produced as part of this study. Findings from plan performance evaluation using the active transportation performance measures should be reviewed and inform the plan update. Based on the above, new set of priority / near term improvements should be identified and developed.

Section 5 Strategic Recommendations

The Village stands strongly behind its decision to improve walkability in its downtown. Much work remains to be done to establish walking as a widely feasible transportation option. Bold actions are required on the operational level implementing the suggested walkability improvements as well as on the strategic or policy level.

The following strategic recommendations are laid out for the Village to most effectively implement the suggested walkability improvements and make a long-term positive difference for the community and their downtown.

Strategic Recommendations

1. Continue and elevate community engagement
2. Commit to prioritizing active transportation and adopt a Complete Streets policy
3. Develop and promote Lindenhurst as a healthy and sustainable Village
4. Develop design guidelines and zoning regulations
5. Follow an integrated planning approach
6. Assess implementation progress and regularly update study

5.1 Continue to Thoroughly Engage the Community

Community engagement makes public acceptance and support more likely. It minimizes risks for decision-makers and facilitates the implementation of the study.

In Lindenhurst, community engagement has been a means to obtain valuable input from residents and stakeholders and validate draft suggestions of this walkability study. A plethora of suggestions was provided, and the entirety of the community input was considered in the development of the study and its recommendations.

The Village has generated a strong momentum towards revitalizing its downtown by thoroughly engaging the community in the development of the walkability study. Walkability audits (LindenWalks) for various community and stakeholder groups; community workshops, mobility-related events, and an online public engagement tool offered opportunities for community members to provide their ideas, concerns and suggestion on improving walkability in the downtown area. The Village is pursuing a similar public engagement path for the development its Downtown Master Planning aiming to ensure buy-in and support also for this plan by the ultimate beneficiary – the Lindenhurst community.

It is recommended to continue and even intensify community engagement after the completion of the walkability study to keep the momentum going during the phase of the study implementation.

In 2018, Lindenhurst was already one of the most active communities during Long Island Mobility Week, as Suffolk County Executive Steve Bellone publicly announced the county's plans for a regional bike share program at the Village Square, and the Village hosted a well-attended Walk-Bike Lindenhurst event and several walkability audits (LindenWalks) in downtown Lindenhurst.

The Village has become a frontrunner in walkability and active transportation promotion on Long Island. It is recommended to organize or be part of future mobility events, for example during Long Island Mobility Week, September 15-21, 2019. [39]

This study is recommending several walkability improvements (chapter 3). There is immense value in both, visualizing design suggestions and allowing the public to see and even experience recommended improvements.

Therefore, it is recommended to carry out tactical urbanism events, for example in connection with proposed Village Square extension, the partial closure of E. Hoffman Avenue (service road north of the tracks), the median extension into the Wellwood-Hoffman intersection as well as southward along S. Wellwood Avenue, or the introduction of parklets.

Tactical urbanism measures are temporary in nature. Applying paint to street pavements, blocking off streets or individual lanes with haystacks or traffic cones, or occupying a parking spot in from of a restaurant with tables and chairs are means to simulate a street or place modification. Tactical urbanism measures are usually not controversial, as they are limited to a short period of time and can be quickly reversed. The public should be well informed about the purpose of the tactical urbanism measure prior to as well as during the event to avoid controversy and ultimately garner support.

The Village should consider going beyond gathering suggestions and validating walkability improvements with the community. It could open certain decisions on walkability improvements, such as the extension of the Village Square for public voting, thereby elevating to decision making power of the community. This can take the format of Village Hall events, community meetings, mail ballots. Color or design preferences for wayfinding signs, the location of additional benches or bike racks are other examples that could be put to the community for a final decision for a vote.

5.2 Commit to Prioritizing Active Transportation and Adopt a Complete Streets Policy

The Village is treating walking as a valuable means of transportation and mobility. With the call for the Downtown Walkability Improvement Study, the Village has already set a clear sign that it prioritizes walking by accommodating the mobility, safety and security needs of pedestrians.

The Village should expand its focus beyond walking and embraces a strong active transportation culture.

Active transportation is typically understood as walking and cycling. However, public transportation may also be considered active transportation, as studies have shown it requires a higher level of physical activity.

The reason is simply that most users of public transportation walk to or from stations and make other trips requiring physical activity during their day. [40]

An underlying understanding of, and commitment to, active transportation and its benefits to the community is essential to guiding decision making on transportation and mobility-related projects in the Village of Lindenhurst.

It is recommended that the Village formally commits to prioritizing active transportation and that it adopts a complete streets policy ensuring that all transportation-related projects comply to the basic principle that streets are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. [41]

A complete streets policy also represents an opportunity to demonstrate readiness to accommodate or integrate emerging transportation trends, such as e-scooters, bike-sharing (could also mention car sharing), electric vehicles, and autonomous vehicles.

5.3 Develop and Promote Lindenhurst as a Healthy and Sustainable Village

People choose carefully where they want to live or work. Similarly, businesses select with a lot of caution where to invest or locate. Lindenhurst strives to be the most attractive place for people and businesses. As the Village is competing with other municipalities on Long Island, in the New York metropolitan area and beyond, it needs to find ways to set itself apart.

Attributes such as walkable, bicycle-friendly, healthy, livable, safe, inviting, innovative and sustainable are associated with places that are considered attractive to people and businesses alike.

A strong political commitment to active transportation is a steppingstone towards being recognized as healthy and sustainable place to live and work. The implementation of the recommended walkability improvements (chapter 3) will lead the Village in the same direction.

It is furthermore recommended that Lindenhurst promotes the Village as a healthy and sustainable community. This requires a continued commitment to encouraging and facilitating walking.

It also requires moving ahead in making cycling a safe and convenient transportation mode in the Village via the implementation of cycling infrastructure and, eventually, the participation in Suffolk County's regional bike share program.

The Village may also consider supporting active transportation activities during public events, such as cycling events, bicycle clinics, community walks and runs.

5.4 Develop Design Guidelines and Zoning Regulations

Lindenhurst has one of the highest population densities in Suffolk County. While density is favorable to walkability, only few people walk, let alone frequently walk, in the downtown area.

It is recommended to develop design guidelines and zoning regulations that encourage downtown pedestrian use and support walkability improvements.

It will be important to balance the community's sentiments of wanting to preserve the unique character of Lindenhurst as a historically grown, family-oriented and close-knit Village on Long Island's Great South Bay while also encouraging economic development and downtown revitalization – possibly via allowing new (mixed-use) developments in the Village's downtown.

In June 2017, the Village adopted a Downtown Redevelopment District (DRD) ordinance for a floating zone to encourage residential, mixed-use development and redevelopment within the downtown. Such zoning regulations encourage smart growth developments which can further advance the Village's goal of downtown revitalization. The Village should continue to encourage new investments in the downtown using this regulation and integrate design guidelines within the DRD ordinance.

Public input indicated a strong need for well-defined community identity and sense of place for the downtown. Design guidelines can be used to review and enforce a uniform aesthetics and character for new development and redevelopment projects within the downtown. These guidelines can include codes for building facades, architectural features, signage, canopies and green space in front of the properties.

The recently commenced Downtown Master Plan for the Village of Lindenhurst will address land use and zoning more specifically.

5.5 Follow an Integrated Planning Approach

Downtown revitalization is a multi-departmental and multi-sectoral endeavor which requires coordination within the Village administration as well as between different government levels, such as the Village of Lindenhurst and Suffolk County who have jurisdiction over different streets in the Lindenhurst downtown area.

Moreover, important stakeholder groups should be involved in the planning and implementation of walkability improvements, including the Chamber of Commerce, the BID, special interest groups, (new) businesses and developers, such as Tritec which is building a 260-unit development across the Lindenhurst LIRR station.

It is recommended that the Village Board invites all stakeholder groups to the table for regular coordination meetings. Specific topics such as the installation of a recommended crosswalk from the new Tritec development to the main entrance of the LIRR station, or the analysis of new traffic patterns along Hoffman Avenue following the recommended Village Square extension can be discussed and agreed upon during these coordination meetings.

It is further recommended that the Village seeks coordination with representatives/groups of mobility impaired citizens for the implementation of walkability improvements which affect these groups. This includes the implementation of accessible and safe places via, for example, new crosswalks, bulb-outs, and RRFBs.

5.6 Assess Implementation Progress and Regularly Update Study

The study recommends a series of downtown walkability improvements. It distinguishes between short-term improvements which are recommended for implementation with the upcoming two years and medium-term improvements which are recommended for implementation with the next two to five years.

The implementation will depend on available funding and orders of priority. Moreover, and keeping in mind that especially the transportation domain is undergoing fundamental and rapid changes, new trends and developments may influence implementation decisions.

It is recommended that the progress of implementation is being assessed each year to account for possible changes in the implementation plan. If necessary, the implementation plan and possibly elements of the study should be updated to account for the new realities.

The state of walkability in the Village and the progress towards achieving walkability objectives should be assessed in one- or two-year intervals. It is recommended to set up a basic performance evaluation framework (outlines in chapter 4.3). Evaluation outcomes – positive and negative - should be reported and transparently shared with the Lindenhurst community and the wider public.

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Appendices

A. Summary of Stakeholder Input

LindenWalk Summaries

As a means of engaging stakeholders and the local community and to gather valuable information in terms of observations, suggestions and concerns, a series of walks through the downtown area - 'LindenWalks' were held for different groups between July and October 2018.

The first walk – LindenWalk I was held on July 25, 2018 for representatives of the Village. It was conducted between 5:30PM and 7:00PM. 19 people attended LindenWalk I, including elected Village officials, administrative staff, the Superintendent of Public Works, the Emergency Manager, the President of the Business Improvement District, members of the Lindenhurst Economic Development Committee, a member of the Lindenhurst Cycling Club, as well as four GPI staff members.

LindenWalks II, III and IV were held on September 22, 2018 for the village community. The three 45-minute walks were conducted between 10:30AM and 1:30PM during the time of Walk-Bike-Explore Lindenhurst – the final event of Long Island Mobility Week 2018. 34 people attended the three LindenWalks in total, facilitated by four GPI staff members.

LindenWalks V and VI were held on October 10, 2018 for the village's business community. The two 1-hour walks were conducted between 7:00PM and 8:00PM in conjunction with the Village of Lindenhurst's Chamber of Commerce meeting. 23 people attended the two LindenWalks in total, facilitated by four GPI staff members. These were the only LindenWalks conducted by GPI after sunset allowing night-time-specific observations.

Routes for each LindenWalk were divided into multiple sections, each depicted by a different color, as shown in Figure 1. All LindenWalk participants were asked to complete a walkability audit sheet based on their observations, perceptions and knowledge of the downtown area. For each section, participants were asked to rate the same set of statements pertaining to three main categories: A. sidewalks & streets, B. driver behavior, and C. walking experience. The rating scale ranged from 1 to 5, 1 representing strong disagreement and 5 representing strong agreement. In addition, open-ended questions regarding desired improvements allowed for additional comments and suggestions., and a walk audit was conducted for each section. Figure 2 shows the walkability audit sheet for a typical section.

General findings from the walkability audits are listed below:

Sidewalks and Streets - LindenWalk participants were asked to provide their feedback on the quality of the downtown sidewalks. The focus was on the perception of the sidewalk width allowing for comfortable walks, the adequate separation from traffic, and the distance to find safe and marked crosswalks. S Wellwood Avenue, more precisely the street section between E Gates and Hoffman Avenue, received exceptionally high ratings, mainly due to the wide sidewalks, but also the marked crosswalks in this area. School Street received the poorest ratings observed in this category, compared to other downtown sections. This street, especially its eastern side, is characterized by the lack of sidewalks over large street portions.

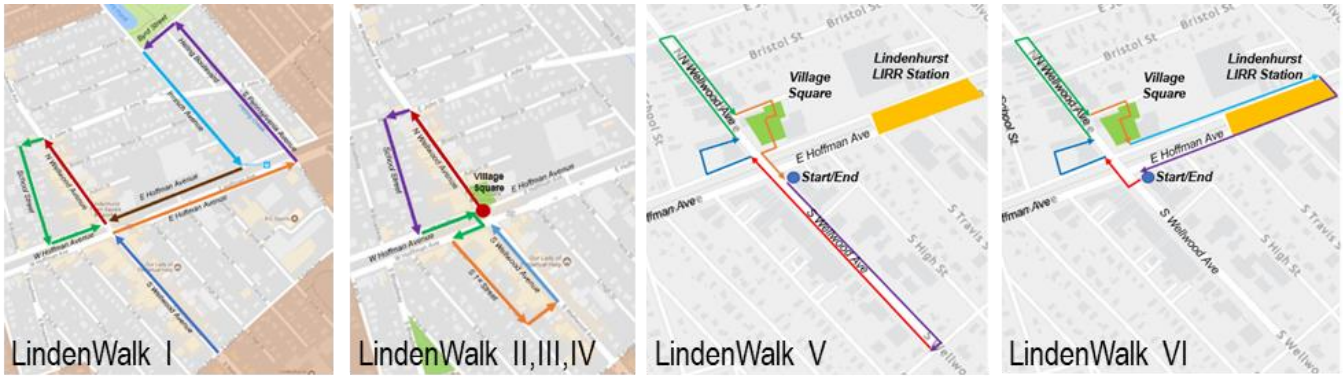

Figure 1: LindenWalk Routes and Sections

LINDENWALK I GREEN LOOP (W JOHN ST., SCHOOL ST., AND W HOFFMAN AVE.)

RATE 1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree

Sidewalks & Street

Sidewalks are wide enough to walk comfortably.
1 2 3 4 5 COMMENTS:

Sidewalks are adequately separated from traffic via parking, trees etc.
1 2 3 4 5 COMMENTS:

I have to walk too far to find a safe, marked crosswalk.
1 2 3 4 5 COMMENTS:

Driver Behavior

Drivers are moving at a speed that feels safe walking by or crossing.
1 2 3 4 5 COMMENTS:

Drivers are stopping at stop signs/behind the crosswalks.
1 2 3 4 5 COMMENTS:

Drivers are yielding to pedestrians, especially at right turns.
1 2 3 4 5 COMMENTS:

Walking Experience

This street section provides adequate shade and shelter.
1 2 3 4 5 COMMENTS:

This street section has places to stop and rest.
1 2 3 4 5 COMMENTS:

This street section offers things to see and do.
1 2 3 4 5 COMMENTS:

This street section is pleasant to walk. (trash/blight/lighting)
1 2 3 4 5 COMMENTS:

I feel comfortable and safe to walk. (road danger/personal security)
1 2 3 4 5 COMMENTS:

YOUR ADDITIONAL NOTES:

What do you like about this street section?

What improvements in this street section will make you walk / bike here more?

What can be the single-most important improvement that can make the biggest impact to this section?

Figure 2: Walkability Audit Sheet

Driver Behavior - Observations on Driving speeds, driver behavior, such as stopping at stop signs or at crosswalks, and yielding to pedestrians was assessed in this aspect. The average rating for driving behavior ranged from neutral to moderately favorable for all LindenWalks. The sections with the poorest ratings include S Wellwood, N Wellwood, and E Hoffman Avenues – the sections with the most vehicular traffic among the LindenWalk sections.

Walking Experience - LindenWalk participants were asked to provide statements on shade and shelter, places to stop and rest, things to do, and the pleasantry and appearance of the street as well as on their perception of comfort and safety walking in the downtown. The walking experience in downtown Lindenhurst was rated relatively poor, with two notable exceptions - S and N Wellwood Avenue, commonly referred to as Lindenhurst's Main Street. For these Wellwood Avenue sections, walking experience was rated moderately favorable. The street section on East Hoffman Avenue, across the Lindenhurst train station on south side of the tracks, received the lowest walking experience ratings of all LindenWalk sections.

Walkability Improvement Suggestions - LindenWalk participants offered a variety of general improvement suggestions during LindenWalks, which included need for traffic calming, more and better crosswalks, more and better designed parking, better access to main street and the LIRR station, more prominent downtown identification, uniform and better-quality lighting and street amenities. The participants also expressed their desire for bike lanes, more diverse set of businesses, and thoughtful new developments within the downtown.

Village Representatives – LindenWalk I

Lindenhurst Community – LindenWalk II

Chamber of Commerce – LindenWalk V

Online Public Input Tool

An online public input map was developed to help solicit public input This online public engagement tool went live in September 2018 and comments received until March 2019 were reviewed and incorporated in the existing conditions analysis as well as development of the walkability improvements.

Table 1: Comments and Upvotes received through the online tool

Section	Number of Original Comments	No of secondary comments (on original comments)	No. of Upvotes for Original Comments
I Like	8	5	20
I Don't Like	25	1	34
My Suggestions	95	47	209

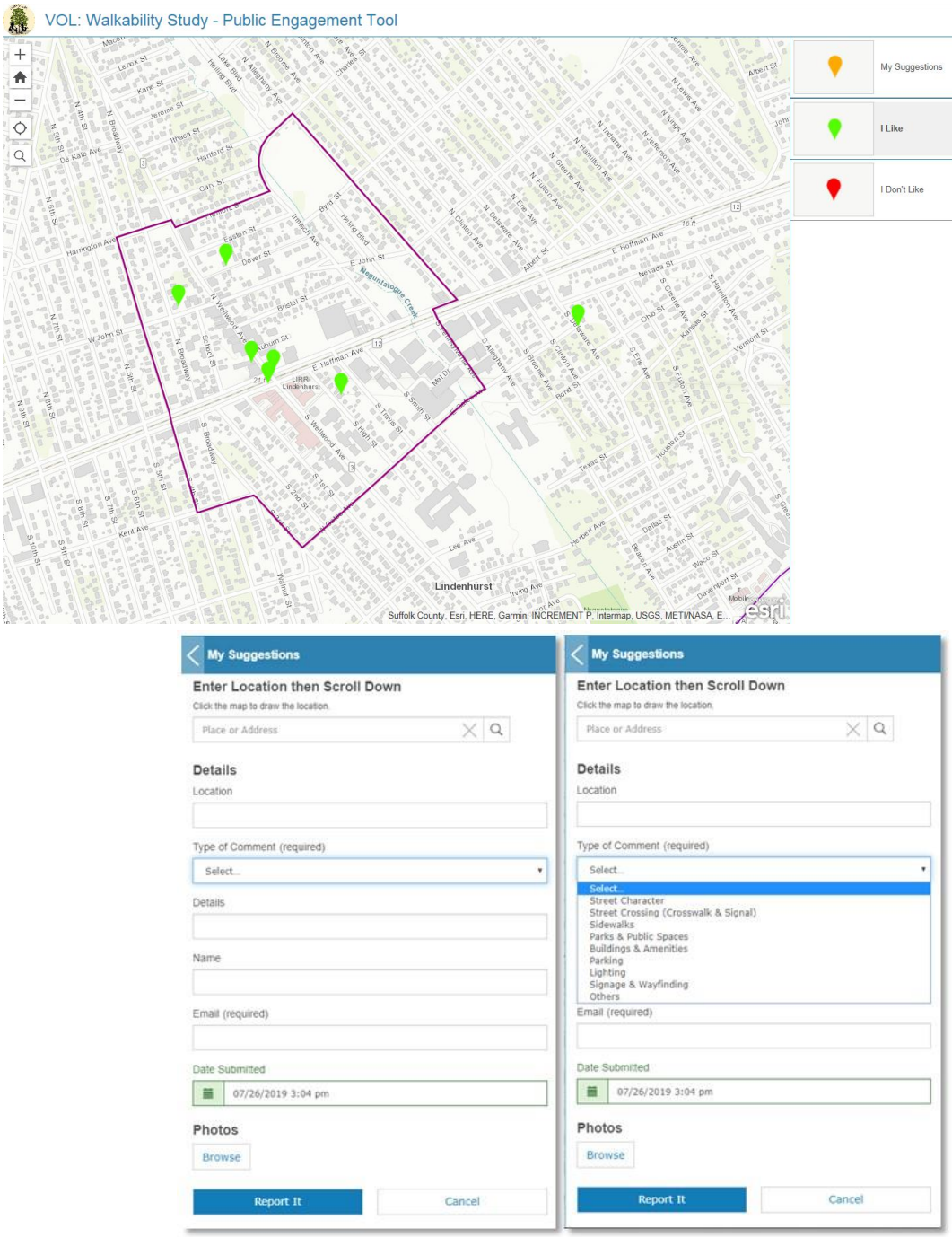

Figure 3: Online Public Engagement Tool on www.lindywalks.net, images showing the tool options under My Suggestion tab.

The tool was structured under three main sections: My suggestions, I like and I don't like. Table 3: Summary of comments received in Section – 'I Like' Table 3 provides a summary of the comments received in the 'I Like' section.

Table 2 provides summary of comments received in the 'My Suggestions' and 'I don't like' sections. 400+ public comments / votes were received on the online tool.

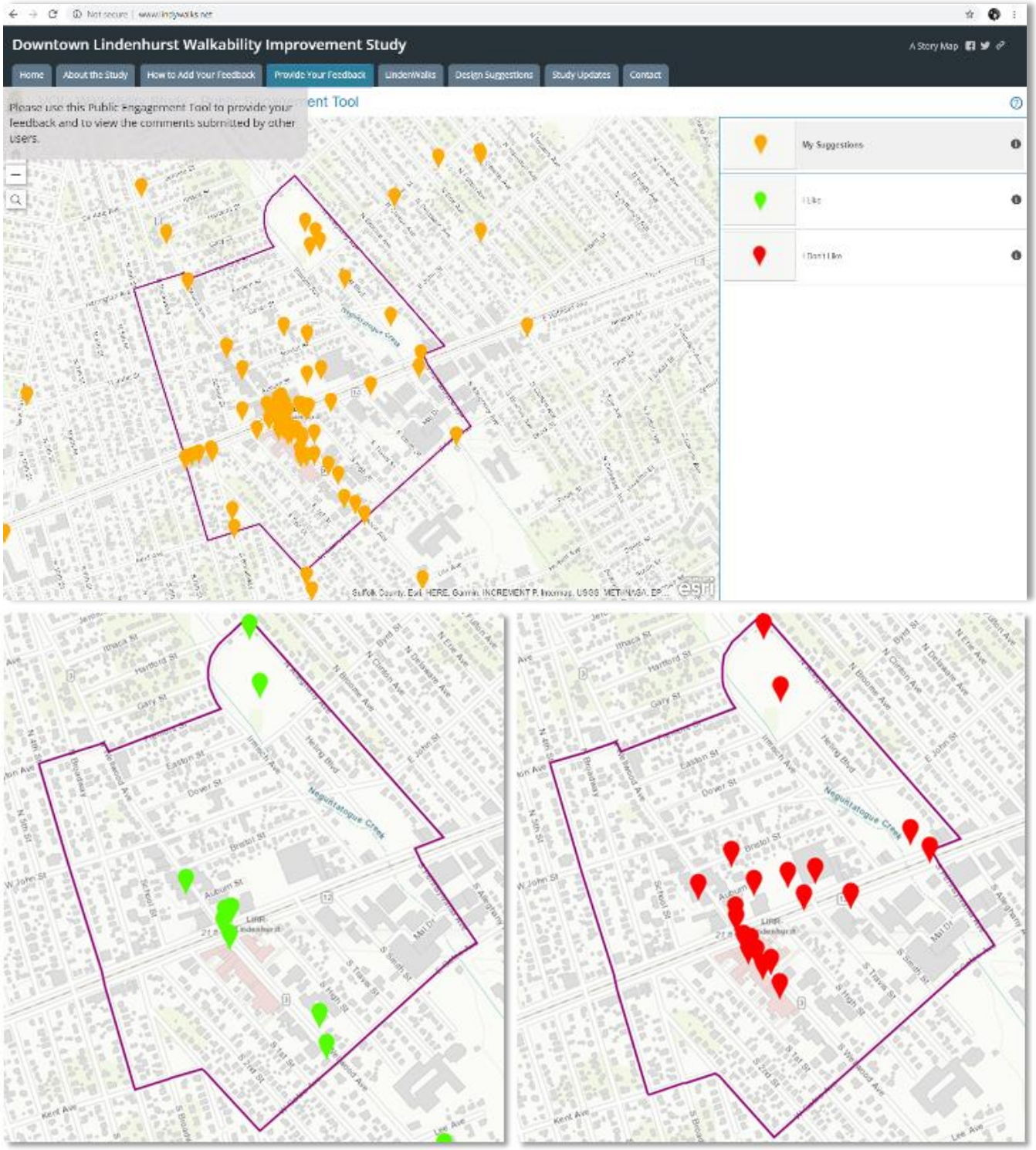

Figure 4: Online Public Engagement Tool on www.lindywalks.net, showing My Suggestion, I Like, and I Don't Like pins.

Table 3: Summary of comments received in Section – 'I Like'

Comment Category	Location	No of comments / likes	Highlights from Public Comments
Median	S Wellwood Avenue at Hoffman Avenue	4	The median here has a nice design. This is also a good intersection to cross at because of the crosswalk and signal used here.
Events at Village Square	Village Square	10	Like the proposed vertical gardens, need to add more pocket parks and open spaces like this, opportunity to highlight green infrastructure
Public Space / Park	Fellers Pond Park	6	opportunity for greenway connecting all green spaces in the Village

Table 2: Summary of comments received in Sections 'My Suggestions' and 'I don't like'

Theme	Comment Category	Location	No of comments / likes	Highlights from Public Comments
Pedestrian Safety and Pedestrian / Cycling Infrastructure	Pedestrian Safety and Traffic Calming	Intersection of Hoffman and Wellwood Avenue and along N & S Wellwood Avenue	45	Traffic Calming, pedestrian signals, Warning signs and lights, new/redesigned crosswalks
	Intersection Improvements	E Hoffman Avenue at S Pennsylvania Avenue	3	Perhaps the most dangerous intersection in the village. Large cars and trucks park with two wheels on the sidewalk for LIRR commute, and it is impossible to see oncoming cars without sticking out very far. Since there is no stop sign or light cars speed.
		W Hoffman Avenue at S Broadway	4	yield sign / stop sign / traffic light on Hoffman and S. Broadway
	New Sidewalk and Crosswalks	Fellers Pond Park	3	Sidewalks and crosswalks should be added to make it more accessible to walk to the park.
	Sidewalk Maintenance and Upkeep	S Wellwood Avenue, School Street	9	Sidewalk Flags, missing sections, low signage
	Bike Infrastructure	Hoffman Avenue	8	The side lanes provide the closest semblance of an east/west bike lane in the Amityville - Lindenhurst area. Perhaps make a permanent one that could have the option of being expanded on by the neighboring towns, to allow safer mobility throughout the area
Public Space	Extension of Public Space	Village Square	23	proposed extension of the Village Square
		Area under the train trestle on the west side of Hoffman and Wellwood Avenue	8	The design suggestions close off the east side of Hoffman next to the courthouse. Something similar could be done on the west side. The space underneath the railway is largely unused. It could be repurposed for additional community space.
	No extension of the Public Space	Village Square	4	Bikes and pedestrians use narrow Hoffman. New business at Waldbaum's may need that access. Need for more parking, not more park
	Dog Park	Dog Park at Fellers Pond Park	3	
	Wi-Fi Hotspots	Village Square and other Parks	10	Consider Wi-Fi Hot Spots in the open spaces within the Village.
	Park Access Timings	Parks within the Downtown	3	Park should be open on weekends
	Potential Destination	The Restored Railroad Depot and Freight House on S Broadway	7	Great Potential to be developed into a destination
Redevelopment Potential and Ideas	Redevelopment of Waldbaum's Site	Loft type Apartments, storefronts underneath	5	
		Family Friendly business with new housing options and public spaces	1	
		Develop more parking	2	

Table 4: Summary of comments received in Sections 'My Suggestions' and 'I don't like' (continued from Table 3)

Theme	Comment Category	Location	No of comments / likes	Highlights from Public Comments
Redevelopment Potential and Ideas	Other potential sites for redevelopment	site of the old Duffy's wing restaurant	1	Could be a new bar/restaurant for commuters getting off the LIRR for a quick bite instead of having to walk downtown. This spot was horribly designed and has so much more potential.
		South-west corner of W Hoffman Avenue and S Wellwood Avenue	6	Add building height, utilizing an opportunity for mixed used. Reinforce edges, and maintain consistency along the building cornice, façade and character. Negotiate walkway cut-through and shared parking in the rear with stakeholders.
		Old Chase outside ATM parking lot (on S Wellwood Avenue close to Gates Avenue)	12	This space should be converted into a municipal landscaped parking lot.This space has been unused for years now and would help with the shortage of village parking. It would also help with the village appearance.
	Diversity in Businesses	Throughout the Downtown	5	More diverse storefronts throughout the downtown
Parking	Redesign of Angled Parking	S Wellwood Avenue	12	Angled Parking Safety Concerns
	Parking Management - Event Parking	E Gates Avenue close to Alleghany Avenue Elementary School and Football Field	1	High on-street parking by School Event Attendees observed at this location
	Parking Management - Shared Parking for Businesses	S Wellwood Avenue	4	Consideration for pedestrian cut through, and shared parking behind the buildings may help calm traffic on Wellwood Avenue and allow the Village to monitor. Cut through to be well lite and monitored.
	Pedestrian access to Parking	to/from the Downtown and Heling Blvd lots	1	Improved sidewalks and lighting, Safety Concerns during the evening hours
		to / from the High Street Municipal Parking lot and CVS Parking Lot	7	Use the space behind the CVS to make an inviting walkway thru to Wellwood Avenue from the new High St. parking lot and train to encourage foot traffic to Wellwood Avenue
Village Character and Sense of Place	Downtown Gateways and Character	S Wellwood Avenue at Gates Avenue, N Wellwood Avenue at Fremont Street, W Hoffman Avenue at S 4th Street, E Hoffman Avenue at S Pennsylvania Avenue	12	Village character to be identified at this location, serving as the door into the village. Items such as lighting, signage, paving, vegetation, traffic calming and character of continuity may start here.
	Store Fronts	Wellwood Avenue	18	Store fronts on Wellwood Avenue need a face lift or uniformed look to enhance the look of the village. This will help give the village a more Aesthetically pleasing look aesthetically pleasing look.
	Sidewalk Accessory Use	In front of Village Lanterne / Black Forest Bakery	2	Village needs to regulate side and placement of outdoor tables at such facilities
	Street Character and Identity	S Wellwood Avenue, closer to Hoffman Avenue	5	Facade Improvements - relocating AC Units facing the street to rear of the building
	Lighting	Along Hoffman Avenue	16	Lighting on the Street, SDW & under the LIRR should be reviewed. Hoffman serves as an E-W artery from neighboring towns. The condition here should be and expansion of the downtown, and reflect the character of VOL.
Traffic Flow	No removal of right turn lane	on S Wellwood Avenue at E Hoffman Avenue	8	Removing the right turning lane would back traffic all the way down to West Gates Avenue.
	Connect N & S Broadway	Broadway	3	S. Broadway may serve as a roadway couplet to calm traffic on Wellwood Avenue. Traffic studies may review this as an alternative to direct through traffic around Wellwood.
	Reestablish continuity of Street	Auburn and Travis Street	2	Have Auburn continue and have Travis st continue and build stores and apartments on both sides of the streets

Table 5: Summary of comments received in Sections 'My Suggestions' and 'I don't like' (continued from Table 4)

Theme	Comment Category	Location	No of comments / likes	Highlights from Public Comments
Wayfinding and Signage	Signage & Wayfinding	Overhead LIRR Signage (Advertisement)	1	Overhead LIRR signage should be revisited at this intersection. Signage at this location should be considered as a representation of the downtown and go through village approval.
		Street Signs on Wellwood Avenue	2	The street signs up and down Wellwood Avenue, which were replaced a few years ago, are hard to read. The font used and the point size are not sufficient. I suggest replacing them with signs that are larger and easier to read, especially as you drive by
	Signage Diet	S Wellwood Avenue, closer to Hoffman Avenue	2	Pedestrian viewsheds are blocks by low signage, which also poses as a safety concern
Security	Security in Public Spaces	Gazebo at Village Square, Commuter Parking Lots, Lindenhurst Commons Parking lot	23	Need for better lighting and SCPD foot/bike patrol (teen hangout during the night and illegal parking on grass during sporting events in Heling Blvd lots, people sleeping in the Gazebo)
	Security in Public Streets	E John Street	1	More SCPD Patrol
	Lighting	E Hoffman Avenue north of tracks, from N Wellwood Avenue to S Travis Street and Heling Blvd Commuter Lots	2	Safety Concerns during the evening hours
Miscellaneous	Transportation Trolley	Hoffman Avenue	3	Consider a transportation trolley that runs east – west. Allow riders to enter the Village from neighboring downtowns. Operate at peak times, Fri – Sun. Source of revenue for the Village & asset to the business district. Stakeholders to recover cost.
	New high-tech trash receptacles	Wellwood Avenue	1	The waste bins are unsightly and overflow from time to time which detracts from the curb appeal. Suggest that we introduce Big-belly Solar compacting receptacles like they have in other towns and villages. They are enclosed and reduce bag changes.

B. National and International Best Practices

This section provides an overview of best practices pertaining to downtown revitalization and walkability improvements and discusses lessons that can be learned for the development and implementation of the Downtown Walkability Improvement Study.

Photo 1: Pedestrian Zone in Vitoria-Gasteiz, Spain
(Harry Schiffer; eltis.org)

As agreed with the Village of Lindenhurst, best practices are presented and discussed in the areas of placemaking and transformation of public spaces (chapter 3), walking-focused wayfinding (chapter 4), and Parking Benefit Districts (chapter 5) as a particular parking management topic of interest.

Walkability and Downtown Revitalization

With the call for a walkability study, the Village of Lindenhurst is pursuing a path that was, until very recently, virtually unthinkable on the car-focused and largely car-dependent Long Island. Around the world, improving walkability has proven to be a recipe for leading neighborhoods out of distress. It has become the strategy of municipalities – nationally and internationally – that stand out for their vibrant urban centers and high quality of life.

Smart Growth America, one of the leading national organizations dedicated to improving communities, makes compelling arguments for the causality of walkability and downtown revitalization:

"Downtowns, main streets, and city centers across the country are witnessing a renaissance. As more Americans choose the convenience and connectivity of walkable neighborhoods, communities are seeing new businesses, restaurants, and shops open in areas that were formerly vacant or economically distressed. This movement presents an economic opportunity for communities. Creating a vibrant, walkable neighborhood can help attract and retain talented people and the companies that want to hire them. It can expand economic opportunity within your community and create a culture of engagement. It can also make your town or city stand out within your region as a destination to shop, dine, visit, move to, or invest. It's a chance to celebrate your community's diverse history, create new opportunities for long-time neighborhood residents, and to achieve the triple-bottom line of a more equitable community, stronger economy, and protected environment."

Photo 2: Downtown Patchogue, NY
(Veronique Louis; www.newsday.com)

Lindenhurst is competing with many communities on Long Island in making their community and especially their downtown an attractive place for people to live and work and businesses to invest. A more walkable downtown with plenty of shops and restaurants typically equates to economic benefits, as it has been shown that customers are more likely to shop in walkable environments than in car-centric ones.

Beyond the economic argument, there is convincing evidence that walkability improvements generate environmental and public health benefits. These are crucial factors for people and businesses to choose one municipality over another, and even one downtown over another.

Walkability improvements do not need to be expensive. As described in Tactical Urbanism by Mike Lydon et al., *improving the livability of our downtowns and*

neighborhoods commonly starts at the street, block, or building scale. While larger scale efforts have their place, incremental small-scale improvements are increasingly seen as a way to test new concepts before making substantial political and financial commitments.

Experimentation informs Design

Communities in the U.S. and worldwide have tested design alternatives, such as pop-up bicycle lanes, car free squares, parklets, and other quick-build projects on a temporary basis. These temporary installations are referred by multiple terms including tactical urbanism, guerrilla urbanism, quick-build projects and living previews. Upon implementation, results may be observed and measured in real time. When such experiments are done inexpensively, and with flexibility, adjustments may be made before moving forward with large capital expenditures. Further, if the project doesn't work as planned, the entire budget is not spent and future designs may be calibrated to absorb the lessons learned. Tactical urbanism or quick build projects are most effective when used in conjunction with long-term planning efforts.

Photo 3: Painting of a Temporary Bike Lane in Tampa, FL

Participatory approaches used as part of a tactical urbanism project, may more quickly build trust among the community and local governing authorities. Involving the public in the physical testing of ideas, by either observing, interacting or commenting, also yields unique insights into the expectations of future users and the types of design features to be considered as part of the proposed project.

Photo 4: Living Street in Gent, Belgium
(Wannes Nimmegeers; www.hln.be)

If the public can physically participate in the improvement within their community, no matter how small the effort, there is an increased likelihood of gaining increased public support for more permanent change later.

International initiatives, such as Open Streets and Living Streets organize temporary closures of streets for cars and their repurposing as event-rich places to be experienced by pedestrians and cyclists. These projects intend to demonstrate the advantages of walkability improvements to the public and, in an ideal scenario, trigger public desire to make these solutions permanent. They can also be used to simply highlight small but pressing issues and build public awareness. Projects involving open street measures have the advantage of being reversible and inexpensive – often only requiring a permit and a few buckets of paint.

NACTO, the National Association of City Transportation Officials, is embracing these community-driven initiatives and has published an Open Street Guide to support their national uptake.

Placemaking and the Transformation of Public Spaces

Public spaces are places that are open and accessible to all people. This includes parks, plazas, and squares as typical spaces where people like to gather and interact as well as roads, streets, and paths as the connecting spaces. The way all these public spaces are planned has a significant impact on people's quality of life.

> ***If you plan cities for cars and traffic, you will get cars and traffic.***
>
> ***If you plan for people and places, you will get people and places.***
>
> Fred Kent, Founder, Project for Public Spaces

We are currently observing a paradigm shift in planning – and the Lindenhurst Downtown Walkability Study is local evidence for this paradigm shift. For decades, the planning focus was on creating space and capacity for automobiles and their rapid movement. The obvious consequences have been the loss of people space and the creation of road safety conditions that are often outright dangerous, especially for people outside of an automobile. Today, the planning paradigm is shifting towards people-focused planning – planning for making active transportation via walking, cycling and public possible and attractive.

Walkability planning and active transportation planning imply the need to transform public spaces into true people spaces. Placemaking is a tool that makes such transformation possible. Project for Public Spaces, a New York City-based no-profit placemaking organization, defines placemaking as follows:

Placemaking inspires people to collectively reimagine and reinvent public spaces as the heart of every community. Strengthening the connection between people and the places they share, placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value. More than just promoting better urban design, placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution.

The goal of creating attractive, people-friendly and vibrant places is shared by municipalities all over the world. Below are some successful examples on how they went about it.

New York City has been focusing on the improvement of its plazas as well as the open space under more than 300 miles of bridges, elevated highways, and rail lines via community engagement and creative placemaking.

New York City Plaza Program

New York City's Plaza Program works with local communities to create new public open spaces by reclaiming underutilized streets. The City plans and creates the pedestrian plaza with input from the neighborhood, while a community partner, such as a civic organization or business improvement district, maintains and programs the space.

Photo 5: New York City Plaza Program
(nyc.gov/plazas)

The City has a series of application-based programs. These programs include CityRacks, Bike Corrals, CityBench, Leaning Bars, Weekend Walks, Seasonal Streets, Shared Streets, StreetSeats, and Pedestrian Plazas.

Street Seats organizes the cooperation between the municipality and a community or business partner to transform underused streets into vibrant, social public spaces. Street seats – also called 'parklets', see below – are installed in the roadbed along the curb line or on wide sidewalks to create an attractive setting for eating, reading, working, and meeting areas. Street seats are seasonal intervention during the months of March to December when outdoor seating is most desired. While the applying partner selects the design and maintains the street seats, the NYC Department of Transportation (DOT) provides operational elements, such as signage, wheel stop bars, striping on the parking lane, and/or temporary plastic bollards.

Photo 6: Street Seats in New York City, W 37 Street in Manhattan
(https://www1.nyc.gov/html/dot/html/pedestrians/streetseats.shtml)

New York City El-Space Program

The NYCDOT Strategic Plan states that 'New York City has over 300 miles of bridges and elevated highways and rail lines. Beneath this elevated transportation infrastructure lie millions of square feet of space - "el-space" - that is a largely unused and often uninviting. These elevated structures can also divide neighborhoods. In response, DOT is establishing the El-Space Program to enhance, activate, and reclaim el-spaces, reconnecting neighborhoods and providing more open space to communities.'

Photo 7: Sunset Park El-Space, Brooklyn, NY - Before and After
(www1.nyc.gov/html/dot/html/pedestrians/el-space.shtml)

The DOT developed a toolkit of elements to enliven the el-spaces. This includes a multi-media seating installation, el-space lighting, green infrastructure, a concession booth, and more attractive fence designs.

The agency initiated several pilot projects cooperating with private sector partners and community groups throughout the city. The NYCDOT El-Space program features Sunset Park El-Space in Brooklyn which is carried out in cooperation with the Design Trust for Public Space:

Sunset Park El-Space is located beneath the Gowanus Expressway at 3rd Avenue and 36th Street in Brooklyn. The project features new LED lighting that illuminates the structural surfaces and the volume of space defined by the columns of the viaduct. CorTen steel planters with low-light plantings capture stormwater from the highway above via signature cone-like downspouts. Modular decking and other surface treatments organize the parking spaces while providing pedestrian circulation including a central walkway. The project partner, Industry City, collaborated on the design, carried out the construction of the project, and is responsible for the maintenance of the amenities.

Photo 8: El-Space Installation in Sunset Park, Brooklyn, NY
(http://designtrust.org/news/nyc-transforms-underpasses-lively-public-space/)

Creative Placemaking

The placemaking movement is also creating an opportunity to bring community-based arts and cultural activities into transportation and land use processes. Such 'creative placemaking' activities engage the community in transforming public spaces into more attractive and walking-friendly places.

Silent Lights is an **artistic lighting project** by NYCDOT's Urban Arts Program and the Brooklyn Arts Council intended to transform dark spaces. This project, located in the north Fort Greene neighborhood in Brooklyn, NY, worked with residents, community foundations and nonprofit organizations to turn a dark, loud overpass into a pleasant experience for pedestrians who must cross under it.

Photo 9: Transformation of Dark Spaces Through Artistic Lighting in Brooklyn, NY
(Urban Matters, Inc.; http://urbanmatterinc.com/silent-lights/)

While transportation planners address physical barriers between destinations, psychological barriers may still exist. Not a lot of people would put it that way, but anyone who has had to walk across an empty parking lot has a general sense of the idea. Public art and cultural programming can be powerful bridges to connect centers of commerce, link neighborhoods to one another, and maximize pedestrian amenities, as these examples show.

In El Paso, TX, a **downtown pathway is tapping art to build pedestrian-friendly paths to commerce and culture**. A private locked parking lot separates two centers of cultural and economic activity, the Union Plaza District and the Downtown Arts District. What could be a 4-minute walk requires a 15-20-minute detour around a convention center to get from one to the other. Not for much longer.

With support from the NEA, the city will soon complete a pedestrian pathway that will be a destination in its own right featuring a well-lit open public space with plantings, seating, public art, water fountains, a staircase amphitheater, murals and bike parking. The NEA provided some funding, and a local ballot referendum to fund the remainder of the project passed with over 70 percent of residents voting in favor.

Photo 10: Tapping Art to Build Paths to Commerce and Culture in El Paso, TX
(National Endowment for the Arts; www.arts.gov/exploring-our-town/downtown-pathways/)

Parklets

NACTO defines parklets as public seating platforms that convert curbside parking spaces into vibrant community spaces. Also known as street seats or curbside seating, parklets are the product of a partnership between the municipality and local businesses, residents, or neighborhood associations.'

Parklets are temporary in nature and usually transform parallel parking spaces into a place to sit, relax, eat and enjoy street life. Parklets can be landscaped with planters and a decorative railing, furnished with movable tables and chairs. They usually require the loss of some parking spaces which can be the cause of (initial) resistance.

Photo 11: Parklet in Brooklyn, NY

> ***What attracts people most, it appears, is other people.***
>
> William H. Whyte,
> American Urbanist (1917-1999)

A study for **parklets installed in Philadelphia's University City District** on the impacts on sidewalk vitality and neighbor-hood businesses revealed interesting results:

- Parklets in the UCD were not only used by patrons of the adjacent businesses, but also attracted a large number of non-patrons, typically 'sidewalk users' or people stopping to meet and chat.
- Parklet installation coincided with a substantial boost in sales. Following the introduction of the parklets, sales were up by an average of 20%.
- A predictor of parklet success was its visibility from the interior of the host business via a highly transparent façade. The more successful businesses had a façade that included large windows fostering a sense of connection between the business and the parklet. This perception was aided by narrow sidewalks as another moderately strong predictor of parklet performance.
- Parklets located on streets that are comfortable both to pedestrians, and to anyone sitting at a temporary platform in the street were more successful. Factors contributing to the success include the presence of a bicycle lane and parallel parking on both sides of the street, buffering the sidewalk and parklet from vehicles.

Street Furniture

Benches, street lights, water fountains, waste receptables, and (public transit) shelter may be the most common pieces of equipment in the street furniture tool box. A wide range of creative options are available to planners to place equipment along streets, sidewalks and adjacent places to benefit the public. The NYCDOT Street Design Manual provides a good overview.

An interesting feature that caught the attention of the Village of Lindenhurst are book share kiosks. These are free and small public libraries that work under the principle 'take a book, return a book'. Book share kiosks have become popular around the world. They come in different shapes and sizes, but have in common that they can serve as place-enhancing go-to features within communities. The photo below shows a small sample of book kiosks from around the world (clockwise: Frankfurt, Germany; Indianapolis, IN; Cran Brea, UK; Winterset, MO; Charlottesville, VA.

Photo 12: Book Share Kiosk

Green Infrastructure

Green infrastructure includes a range of natural and built approaches to stormwater management, such as rain gardens, bioswales (gently sloped landscape features that remove silt and pollution from stormwater runoff), and permeable paving that mimic natural systems by capturing and cleaning stormwater and letting it absorb back into the ground rather than into the storm sewer system or rivers and lakes.

An interesting feature with a possible application for the Village of Lindenhurst and its LIRR trestles downtown are **vertical gardens**, also referred to as living walls or green walls. Vertical gardens consist of modular panels with

vegetation, that can be clamped to the exterior of a building, dividers, interior walls or any vertical surface. They provide environmental benefits, such as reducing the urban heat island effect and improving air quality. Vertical gardens can also positively impact biodiversity and provide habitat for beneficial insects like butterflies and pollinators (source; LiveWall). They can reduce noise levels along roads and highways and serve as a unique attraction drawing peoples' attention to a place.

The Via Verde project in Mexico City gained worldwide attention for its vertical garden implementation on columns along the city's central ring road.

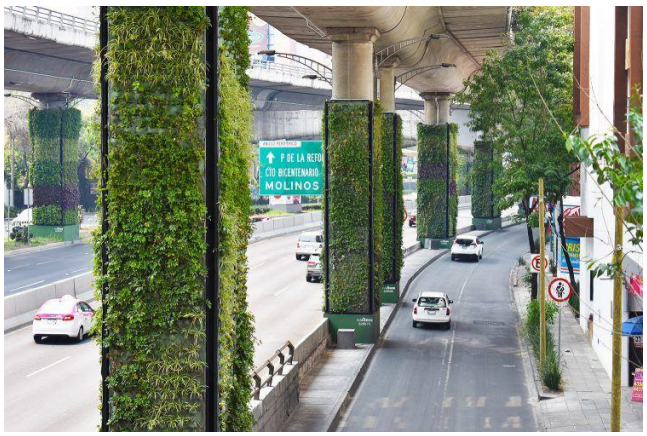

Photo 13: Vertical Gardens in Mexico City
(sg.news.yahoo.com/watch-mexico-transforming-concrete-vertical-050002681.html)

This community-initiated project is set out to transform hundreds of columns which support the elevated motorway into an interconnected vertical garden. Spanning a total of 17 miles, research suggests that the vertical gardens will filter 27,000 tons of gas, provide clean oxygen for 25,000 citizens, and create hundreds of jobs through design, installation and maintenance.

Applicability to Lindenhurst

The New York City examples of transforming public spaces caught worldwide attention. However, they started with small interventions, such as temporary street closures and the introduction of seating (chairs and tables). Especially if introduced as a temporary (tactical urbanism) measure, these are possible options for Lindenhurst and the area around the Village Square and under the LIRR tracks.

Furthermore, Lindenhurst can make use of a variety of placemaking tools ranging from standard bike rack, bench and lighting options to more innovative features, such as parklets, public book kiosks and vertical gardens.

The key to the successful transformation of places in Downtown Lindenhurst appears to be the engagement of the community. It can be assumed that opposition to change is minimized, if certain measures, such as the closure of a small section of East Hoffman Avenue near the Village Square or the installation of parklets along Wellwood Avenue are introduced as temporary changes. Ideally, the Village would moderate the community engagement process. Whether or not place transformations, or even just individual placemaking elements thereof, will eventually become permanent would depend on the community feedback. Furthermore, it is crucial that financial resources and, depending on the intervention, the ability of the Village or community groups to upkeep of certain place improvements are secured.

Walking-focused Wayfinding

In an urban environment, signs are often abundant. They provide information about locations, routes and destinations. They draw attention to potential dangers and indicate right of ways, when to stop, when to go, where and when to park, etc. The sheer number of signs makes capturing all the offered information a challenging and sometimes overwhelming task.

Today, most signs in urban areas cater to drivers, not pedestrians. With the increased focus on walkability, this situation is changing.

Information benefits Walking

Walking-focused wayfinding is a crucial means of achieving connectivity in urban areas and making downtowns more accessible for citizens and visitors alike. It provides people on foot, in wheelchairs, on scooters (and even bicycles) the information needed to safely and conveniently navigate through an area.

Today more than ever, information is of utmost importance to people. Pedestrians are no exception. In fact, walking-focused wayfinding in form of signs, maps, and kiosks offers plenty of useful information that makes peoples' life easier and improves their mobility. It answers a variety of questions:

- Where am I now?
- What does this place have to offer?
- What other points of interest are nearby?
- What's the fastest/safest/most scenic way to get there?
- Where can I safely cross the street?
- How far is it to other downtown destinations and how long would it take me to walk there?
- Where is the next transit stop, where is the closest ride share station, and what is the best route to get there?
- When does the next bus/train arrive?

If done right, wayfinding not only improves the pedestrians' walking experience, but supports, in a cost-effective way, multimodality, road safety, connectivity, accessibility, and economic development in an urban area/downtown.

Wayfinding best practices can be found all over the world. Examples for consideration by the Village of Lindenhurst include:

Walk Time Signs

People often state that it is too far to walk to a destination, and they make the decision to drive instead or possibly not attempt to get to that desired destination at all. In this case, the effect is to have another car on the road, or, in the case of a destination such as a business, restaurant, or museum is avoided all together, a missed economic opportunity. However, it is quite common that the time expected to walk to a destination is strongly overestimated – not least if compared to driving, possibly having to search for a parking spot, and having to walk an albeit shorter distance after all.

Information is key to counter the misperception about the time to walk to a place. Walk time signs and maps combine information about a destination and the anticipated time it takes to walk there.

In 2012, **Walk Raleigh**, a group that was branded a guerrilla wayfinding operation posted 27 signs with walking distances at major intersections in North Carolina's capital city. What was illegal at the time has become a common and authorized means of walking-focused wayfinding.

The image on the right demonstrates how a walk time sign posted at or near Lindenhurst's Village Square could look. If temporary in nature, putting up such walk time signs to test public reactions and acceptance could be considered a tactical urbanism project.

Photo 14: Walk Your City - Mount Hope, NC
(Walk [Your City]; /www.treehugger.com/urban-design/create-your-own-diy-public-signage-walkable-city.html)

Walk Raleigh, which now operates as Walk [Your City], is featuring a tactical urbanism case study from **Mount Hope, NC**. For a summer event that attracts about 30,000 tourists to the small town, an inexpensive solution was sought to attract the visitors to the town's main street and suggest they do so by walking. Following a community engagement process, residents put up about 80 walk time signs in the historic center of Mount Hope. Walk [Your City] is highlighting that more visitors and residents explored the downtown area and that community members are excited to maintain and evolve the signage.

Wayfinding Maps and Kiosks

In 2013, The New York City Department of Transportation introduced **WalkNYC** – a program of pedestrian maps making it easier to navigate the city streets. Placed on a system of dedicated kiosks throughout the city, the maps are designed to encourage people to walk, bike and use public transit, and help guide them to major landmarks and subway and bus stations. Maps and kiosks are designed to provide consistency and familiarity and build trust with residents and visitors exploring the city.

The 8-foot tall kiosks display two maps, one of local streets within a 5-minute walking distance and the other of the area in relation to a larger section of the city.

Photo 15: WalkNYC Kiosk in New York City

Walking-focused wayfinding is by no means limited to larger cities.

The **City of Nashua, NH** spearheaded by their Downtown Improvement Committee developed a wayfinding system to make downtown Nashua more inviting to visitors looking to find landmarks throughout the city, as well as informing those looking for a place to park of their options.

The wayfinding scheme will be implemented in 2019 to safely and efficiently direct motorists off major highways and funnel them into the downtown area via heavily traveled arterials. Once downtown, motorists are directed to parking destinations at which point the signage transitions to smaller scale encouraging walking and cycling trips. Civic, cultural and recreational destinations are highlighted in the wayfinding system. A common signage layout was developed, welcoming visitors to the downtown area and featuring some of Nashua's historic and architectural landmarks.

Wayfinding kiosk show the current location and indicate the distances and destinations that can be reach via a 2-minute and a 5-minute walk.

The development of Nashua's signage and wayfinding scheme was supported by a public outreach campaign and included an online survey that was distributed through email blasts from store owners within the downtown district as well as social media outlets. The project also had a public website which featured project plans and links to design surveys as well as a contact feed which was hyperlinked on the City's homepage.

Applicability to Lindenhurst

The Village of Lindenhurst lacks a wayfinding scheme targeted at pedestrians trying to find safe, convenient and interesting routes through its downtown.

A walking-focused wayfinding scheme presents an opportunity to feature important landmarks and destinations within the downtown. It could be a tool to foster multimodality in the Village by integrating important mobility hotspots in the Village, such as the LIRR station, SCT stops, taxi stands, and possibly bike share stations. The design of signs and kiosks as well as the signage locations could be developed with the support of the community, as was the case in Nashua.

Parking Benefits District

Parking is one of the most hotly debated topics in the context of downtown revitalization. Based mainly on peak hour experiences where parking spaces may be difficult to find, oftentimes the perception of a lack of parking spaces is derived. The typical reaction by most municipalities has been to provide more parking spaces. This however makes

driving even more attractive, quite often at the expense of walkability. Today, a wide range of parking management strategies are available to municipalities, including pricing, better wayfinding, or the shared use of parking spaces. The Village of Lindenhurst is particularly interested in parking benefit districts to manage parking demand and, at the same time, obtain funds for sustainable transportation improvements in the Village's downtown area.

Parking funds Walking

A parking benefit district (PBD) is a defined geographic area, for example a municipality's downtown area, designed to improve the availability of on-street parking while promoting walking, cycling and transit use. Collected parking revenues are then partly or fully invested to fund a wide range of transportation-related improvements within the PBD. Raised funds can be used for a variety of purposes, such as investments in landscaping, benches and lighting, or the support of pedestrian, cycling or public transit infrastructure. In predominantly residential areas, parking meter revenue can even be used to reduce property taxes for residents within the district.

The prices for metered parking in PBDs may be higher than before. This is an unpopular move especially when parking in the area used to be free or inexpensive. For this reason, it is important that parking revenue are invested in highly visible local public improvements to make the streets and other public places in the district more attractive. Information should be provided – on parking meters or nearby information kiosks – about the purpose of the PBD and intended use of the raised revenue.

State-of-the-art parking meter technology allows users to pay remotely by credit card or cell phone, and it allows pricing flexibility, as parking rates can be changed in real-time based on location, time of day, day of week, or level of occupancy. Finding the 'right' price remains however a challenging task. Ideally, the (hourly) parking rate is set to keep approximately 15% of parking spaces vacant. This avoids lengthy parking spots searches which are not only the reason for immense frustration among drivers, but also a major contributor to traffic congestion (30% of vehicular traffic in downtown areas is estimated to account for such searches), emissions, and loss of time.

Boulder, CO

The first PBD in the nation was implemented in downtown Boulder in 1970. Automated payment machines and increased parking rates were introduced to the busy University General Improvement District and the Central Area General Improvement District. The latter alone encompasses 875 on-street metered parking spaces and nine off-street parking facilities over a 30-block district in downtown Boulder.

All revenues are reinvested in the district. This includes a free downtown employee EcoPass program, bike rack purchases and the financial support of the local bike share program.

The Los Angeles County Metropolitan Transportation Authority features the PBD best practices of Old Pasadena, CA and Austin, TX on their website:

Old Pasadena, CA

Pasadena's downtown had been facing decline for decades until the city revived the area in the early 1990s. Part of this process was installing parking meters in the area. This was a controversial move, as the businesses protested that they would lose customers. The city argued that many of the street spaces were being used by employees and that the spaces needed to be better managed. After some deliberations, a compromise was made in which all parking revenues would be reinvested back into the area for public investments.

The city borrowed $5 million to finance streetscape improvements with meter revenues dedicated to repaying the debt. The area was improved with street furniture, trees, and historical lighting fixtures. Now, Old Pasadena is thriving and the PBD assisted in the revival of the area, while also solving parking issues.

Austin, TX

PBDs in the City of Austin dedicate a portion of revenues to not only the district, but also to the City's general fund. Approximately half of the proceeds are reserved for the parking district, and the other half is transferred to the general fund. Of notable interest is that the City's regulations require that the revenue be used to promote walking, bicycling, and public transit within the district or in conjunction with other city funds for larger projects.

Photo 16: Downtown Austin On-street Parking
(www.austinmonitor.com/stories/2017/06/austins-next-mobility-challenge-downtown-parking/)

In 2005, the City received grant funding from the United States Environmental Protection Agency (EPA) to initiate its PBD pilot around the University of Texas' West Campus Neighborhood. The neighborhood began to experience increased traffic congestion due to new regulations promoting denser land use. Streets also became more congested due to lack of parking which led to motorists circling around to find available spaces. As a part of the PBD pilot, the City purchased and installed 96 parking meters along neighborhood streets and charged a flat $1 per hour rate with a two-hour time limit.

The PBD pilot's first year generated approximately $163,000 in revenue, of which $40,000 was used for sidewalk and curb enhancements, benches, crosswalks, transit shelters, and bike lanes. The PBD pilot lasted for five years and contributed increasing revenues for the City. Because of its success, the City established PBDs in a city ordinance and allowed any neighborhood in the City to apply and implement PBDs as a strategy to manage parking and use revenues for community improvements.

Applicability to Lindenhurst

The introduction of a PBD may be considered for a pilot area within the downtown of Lindenhurst where higher parking meter prices would be charged and revenues would be reinvested – fully or partially – in streetscape or mobility improvements, or parking meters if these had to be purchased. The pilot area should be carefully chosen as a parking spillover effect to lower-priced parking areas can be expected. The Village as the implementing agency would also need to ensure that such a pilot complies with its parking ordinances or revise them accordingly.

Most importantly, the introduction of a PBD would require support from the downtown business community. The Montana Department of Transportation suggests a two-step approach for the education and involvement of local businesses: "Local businesses may initially resist the idea of parking benefit districts if they think that free on-street parking is essential for them to compete with suburban shopping centers. Addressing these concerns involves a two-part discussion. First, downtown businesses must understand and promote the unique qualities that make their location a more pleasant and attractive place for strolling, shopping, and dining than shopping malls surrounded by a sea of asphalt. Second, they should be closely involved in developing plans for the use of the funds generated by the parking meters, all of which are dedicated solely toward improving the attractiveness and accessibility of their district.'

Photo 17: Lindenhurst, S. Wellwood Avenue

As a measure that combines parking management with raising funds for walkability and mobility improvements, a PBD is an interesting tool. It does however require upfront investments and strong dedication and support by both, business community and the municipality itself.

C. Parking Utilization Study

A parking study was conducted to determine the overall parking utilization for curbside, commuter lot and municipal lot parking within the downtown study area. The intent of the parking study is to determine the existing peak parking demand within the downtown.

Curbside Parking Survey

Curbside parking utilization surveys were conducted for a typical weekday (Thursday) and a typical weekend (Saturday). The survey area included:

- North Wellwood Avenue – between Harrington Avenue and West & East Hoffman Avenue
- South Wellwood Avenue – between West & East Hoffman Avenue and West & East Gates Avenue
- West Hoffman Avenue – between North & South Wellwood Avenue and North & South 4th Street
- East Hoffman Avenue – between North & South Wellwood Avenue and S, Pennsylvania Avenue and N Alleghany Avenue

Dates and times of these parking surveys were chosen after discussions with Village officials based on their local knowledge of peak parking demand times in the downtown area.

The parking survey was segregated into a block-by-block sections and individual lot observations. Before conducting this parking survey, all block-by-block legal parking spaces were determined via aerial mapping and then confirmed during the parking study. Curbsides depicting parking restrictions such as Yellow curb paintings, No Standing signs, No Parking signs, etc., were also considered while determining the legal parking spaces within each block. Residential curbside parking spaces were counted based on 20-foot increments, as recommended by the Institute of Transportation Engineers (ITE) Traffic Engineering Handbook, 6th Edition.

Two GPI employees surveyed curbside and municipal lot parking on Saturday, June 15th, 2019 from 5:00 pm to 9:00 pm, as well as Thursday, June 26th, 2019 from 12:00 noon to 8:00 pm. Furthermore, one of the GPI employees conducted a survey of the permit required commuter parking lots for the Long Island Rail Road train station on Thursday June 20th, Friday June 21st, and Thursday June 27th, 2019 between the time periods of 9:30 am to 10:30 am. This helped to understand the temporal distribution of the existing parking demand and utilization during the study periods and determine the peak hour for legal parking space utilization and demand when compared to available parking within the project study area. Illegally parked cars were also observed during this survey and documented.

Figure 5 depicts the existing parking distribution throughout the downtown. Private parking lots for housing developments and businesses were excluded from the parking surveys. GPI identified 335 legally available curbside parking spaces on Wellwood and Hoffman Avenues, 16 metered curbside parking spaces on side streets off North Wellwood Avenue providing a total of 351, as well as 920 parking lot spaces – 555 of which were confined to the Long Island Rail Road commuter lots. A total count of 1,271 was determined as the overall total public parking spaces available within the downtown area.

Table 6 and

Table 7 list the observed legal and illegal parking totals for the curbside parking, both during weekday and the weekend. Table 8 and Table 9 depict the curbside utilization percentages during a typical weekday and Saturday within the downtown study area. Average utilization for Thursday curbside parking was 47%. Average utilization for Saturday curbside parking was 46%. These tables indicate that maximum legal parking space utilization occurred between 12:00 noon - 1:00 pm and 7:00 pm – 8:00 pm on a typical weekday, with a utilization rate of 51% (or 179/178 observed parking utilization out of 351 available spaces). It is important to note that the legal on-street parking occupancy during a typical weekday varied between 46% and 65% between 12:00 noon to 8:00 pm. The number of occupied spaces for a typical Saturday indicated 52% maximum legal curbside parking occupancy (or 183 observed parking out of 351 available spaces) during 5:00 pm - 6:00 pm.

PARKING MAP CURBSIDE & LOT COUNTS

Total Curbside Parking (Hoffman): 138
Metered: 64 Non-Metered: 74
Total Curbside Parking (Wellwood): 197
Total Lot Parking*: 920
Total Side Street Meter Parking: 16
Total Parking: 1271

*Total Lot Parking is the sum of circled numbers
**Permit Require Parking Lot outside of Study Area

Parking Type
- Commuter Parking Lot
- Municipal Lot
- Metered
- Handicap Spaces
- Curbside Parking -2 Hour Parking Limit
- Curbside Parking -30 Minute Parking Limit
- Residential Parking

MAP SHOWING DOWNTOWN WALKABILITY STUDY AREA

Figure 5: Existing Curbside, Municipal and Commuter Parking Lot Totals

Table 6: Weekday Hourly Parking Totals for Legal and Illegal Curbside Parking – Thursday June 27th, 2019

Street	Street Blocks	Parking Capacity	Parking Utilization							
			12:00-1:00 PM		1:00-2:00 PM		2:00-3:00 PM		3:00-4:00 PM	
			Legal	Illegal	Legal	Illegal	Legal	Illegal	Legal	Illegal
N. Wellwood Ave	Harrington Ave - W John St (W)	**23**	13		9		10		19	
	Freemont - Easton (E)	**7**	7		1	1	4		7	
	Easton - Dover (E)	**8**	2		3		3		3	
	Dover - E John St (E)	**5**	4		3		3		3	
	W John St - W Hoffman (W)	**25**	11		13		14		14	
	E John St - Bristol (E)	**4**	3		1	1	2		2	
	Bristol - Auburn (E)	**5**	5	1	4		4		4	
	Auburn - E Hoffman (E)	**5**	1		0		1		1	
Bristol St	(N)	**4**	3		3		3		3	
	(S)	**3**	3		0		0		1	
Auburn St	(S)	**9**	1		1		1		2	
S. Wellwood Ave	(E)	**47**	14	0	13	0	12	0	13	0
	(W)	**68**	38	0	39	0	40	1	36	0
W Hoffman Ave	N Wellwood - School St (N)	**14**	3		1		2		4	
	School St - N Broadway (N)	**8**	4		2		4		4	
	N Broadway - N 4th St (N)	**9**	2		5		5	1	1	
	S Wellwood - S 1st St (S)	**7**	3		3		1		2	
	S 1st St - S 2nd St (S)	**6**	0		0		0		0	
	S 2nd St - S Broadway (S)	**1**	3		6	1	5	1	4	
	S Broadway - S 4th St (S)	**5**	6		4		7		0	
E Hoffman Ave	N Wellwood - Irmisch Ave (N)	**45**	21		25		20	1	18	
	Irmisch Ave - N Alleghany (N)	**4**	3		2		4		3	
	S Wellwood - S Travis St (S)	**13**	10		8		6	1	3	
	S Travis St - S Smith St (S)	**7**	7		6		4		5	
	S Smith St - S Pennsylvania (S)	**19**	18		18		16		14	2

Street	Street Blocks	Parking Capacity	Parking Utilization							
			4:00-5:00 PM		5:00-6:00 PM		6:00-7:00 PM		7:00-8:00 PM	
			Legal	Illegal	Legal	Illegal	Legal	Illegal	Legal	Illegal
N. Wellwood Ave	Harrington Ave - W John St (W)	**23**	16	1	16		15		13	
	Freemont - Easton (E)	**7**	3		4		7		6	
	Easton - Dover (E)	**8**	3		4		2		1	
	Dover - E John St (E)	**5**	1		3		2		0	
	W John St - W Hoffman (W)	**25**	8		12		22		23	
	E John St - Bristol (E)	**4**	3		2		4		3	
	Bristol - Auburn (E)	**5**	4		5		5		4	
	Auburn - E Hoffman (E)	**5**	0		1		2		2	
Bristol St	(N)	**4**	1		1		2		4	
	(S)	**3**	1		2		2		3	
Auburn St	(S)	**9**	2		0		0		1	
S. Wellwood Ave	(E)	**47**	20	0	26	0	28	0	32	1
	(W)	**68**	41	2	41	1	41	1	47	1
W Hoffman Ave	N Wellwood - School St (N)	**14**	2		1		0		0	
	School St - N Broadway (N)	**8**	3		1		1		1	
	N Broadway - N 4th St (N)	**9**	0		0		0		3	
	S Wellwood - S 1st St (S)	**7**	0		4		3		4	
	S 1st St - S 2nd St (S)	**6**	0		0		0		0	
	S 2nd St - S Broadway (S)	**1**	4		2		3	1	4	2
	S Broadway - S 4th St (S)	**5**	4		4		0		0	
E Hoffman Ave	N Wellwood - Irmisch Ave (N)	**45**	13		14		10		10	
	Irmisch Ave - N Alleghany (N)	**4**	2		2		0		0	
	S Wellwood - S Travis St (S)	**13**	7		8		13	1	12	1
	S Travis St - S Smith St (S)	**7**	4	1	0		0		6	
	S Smith St - S Pennsylvania (S)	**19**	9		7		6		6	

Table 7: Saturday Hourly Parking Totals for Legal and Illegal Curbside Parking – Saturday June 15th, 2019

Street	Street Blocks	Parking Capacity	Parking Utilization							
			5:00-6:00 PM		6:00-7:00 PM		7:00-8:00 PM		8:00-9:00 PM	
			Legal	Illegal	Legal	Illegal	Legal	Illegal	Legal	Illegal
N. Wellwood Ave	Harrington Ave - W John St (W)	**23**	12		11		13		13	
	Freemont - Easton (E)	**7**	6		6		7	1	1	
	Easton - Dover (E)	**8**	3		0		3		2	
	Dover - E John St (E)	**5**	1		2		5		5	
	W John St - W Hoffman (W)	**25**	23		25		23		25	
	E John St - Bristol (E)	**4**	1		3		4		3	
	Bristol - Auburn (E)	**5**	5		5		5		3	1
	Auburn - E Hoffman (E)	**5**	2		4		5	1	2	
Bristol St	(N)	**4**	3		3		2		3	
	(S)	**3**	0		0		0		2	
Auburn St	(S)	**9**	4		6		6		9	
S. Wellwood Ave	(E)	**47**	44	2	14	1	21	0	21	2
	(W)	**68**	56	3	31	1	31	2	46	0
W Hoffman Ave	N Wellwood - School St (N)	**14**	0		0		0		0	
	School St - N Broadway (N)	**8**	0		1		0		1	
	N Broadway - N 4th St (N)	**9**	4		4		4		4	
	S Wellwood - S 1st St (S)	**7**	1		4	1	5		4	
	S 1st St - S 2nd St (S)	**6**	0		0		0		0	
	S 2nd St - S Broadway (S)	**1**	3	1	6		2		5	1
	S Broadway - S 4th St (S)	**5**	1		3		5		3	
E Hoffman Ave	N Wellwood - Irmisch Ave (N)	**45**	3		3		5		2	
	Irmisch Ave - N Alleghany (N)	**4**	2		6	1	2		4	
	S Wellwood - S Travis St (S)	**13**	5		4		4		5	
	S Travis St - S Smith St (S)	**7**	1		1		0		0	
	S Smith St - S Pennsylvania (S)	**19**	6		7		8		7	

Table 8: Weekday Parking Utilization Percentages for Legal Curbside Parking

Curbside Parking Utilization - Thursday June 27th, 2019									
Street	**Parking Capacity**	**12:00-1:00 PM Legal Parking**	**1:00-2:00 PM Legal Parking**	**2:00-3:00 PM Legal Parking**	**3:00-4:00 PM Legal Parking**	**4:00-5:00 PM Legal Parking**	**5:00-6:00 PM Legal Parking**	**6:00-7:00 PM Legal Parking**	**7:00-8:00 PM Legal Parking**
N. Wellwood Ave	82	46	34	41	53	38	47	59	52
Percentage Utilization		29%	21%	25%	33%	24%	30%	37%	33%
S. Wellwood Ave	115	52	52	52	49	61	67	69	79
Percentage Utilization		45%	45%	45%	43%	53%	58%	60%	69%
W Hoffman Ave	50	21	21	24	15	13	12	7	12
Percentage Utilization		42%	42%	48%	30%	26%	24%	14%	24%
E Hoffman Ave	88	59	59	50	43	35	31	29	34
Percentage Utilization		67%	67%	57%	49%	40%	35%	33%	39%
Bristol St	7	6.00	3.00	3.00	4.00	2.00	3.00	4.00	7.00
Percentage Utilization		86%	43%	43%	57%	29%	43%	57%	100%
Auburn St	9	1	1	1	2	2	0	0	1
Percentage Utilization		11%	11%	11%	22%	22%	0%	0%	11%
Total Occupancy	**351**	**179**	**167**	**168**	**162**	**149**	**157**	**164**	**178**
Percentage Utilization		**51%**	**48%**	**48%**	**46%**	**42%**	**45%**	**47%**	**51%**

Table 9: Weekend Parking Utilization Percentages for Legal Curbside Parking

Curbside Parking Utilization - Saturday June 15th, 2019					
Street	Parking Capacity	5:00-6:00 PM Legal Parking	6:00-7:00 PM Legal Parking	7:00-8:00 PM Legal Parking	8:00-9:00 PM Legal Parking
N. Wellwood Ave	82	53	56	65	54
Percentage Utilization		65%	68%	79%	66%
S. Wellwood Ave	115	100	45	52	67
Percentage Utilization		87%	39%	45%	58%
W Hoffman Ave	50	9	18	16	17
Percentage Utilization		18%	36%	32%	34%
E Hoffman Ave	88	17	21	19	18
Percentage Utilization		19%	24%	22%	20%
Bristol St	7	3	3	2	5
Percentage Utilization		43%	43%	29%	71%
Auburn St	9	4	6	6	9
Percentage Utilization		44%	67%	67%	100%
Total Occupancy	**351**	**183**	**146**	**158**	**165**
Percentage Utilization		**52%**	**42%**	**45%**	**47%**

Specific findings for block-by-block peak parking period, number of legal parking spaces, and observed parking utilization are noted below:

- **North Wellwood Avenue** has a total of 82 legal on-street parking spaces, consisting of 19 non-metered parking spaces, and 63 metered parking spaces. Bristol and Auburn Streets have a total of 16 metered parking spaces which were counted towards the total legal parking spaces. The peak utilization of the side street parking was observed between 4:00 pm–5:00 pm during the weekday. The observed weekday peak utilization is 63 parking spaces (77%) during 6:00 pm - 7:00 pm. The observed peak utilization for Saturday is 73 parking spaces (or 89%) during 7:00 pm - 8:00 pm.
- **South Wellwood Avenue** has a total of 115 legal on-street parking spaces, the entirety of which are metered parking spaces. The observed weekday peak utilization was 79 parking spaces (67%) during 7:00 pm- 8:00 pm. During the weekday, a total of three tractor-trailers were parked across three or four parking spaces for deliveries along South Wellwood, and one tractor-trailer parked on Lindenhurst Commons lot on West Hoffman. These counts were considered as one vehicle occupying the covered spaces. The observed Saturday peak utilization is 100 parking spaces (87%) during 5:00 pm- 6:00 pm. Our Lady of Perpetual Help typically holds Saturday mass services during this hour, including on the day of the survey. The next highest observed period of utilized parking for Saturday is 67 parking spaces (or 58%) during 8:00 pm – 9:00 pm.
- **West Hoffman Avenue** has a total of 50 legal on-street parking. Seven of these spaces are metered along the South curbside of West Hoffman Avenue, and four spaces are metered along the North curbside of West Hoffman Avenue. Between School Street and North Wellwood Avenue, there are markings and signage for seven angled parking spaces and three parallel parking spaces.
  The observed weekday peak utilization is 24 parking spaces (or 48%) during 2:00 pm - 3:00 pm. The observed Saturday peak utilization is also 24 parking spaces (or 48%) during 6:00 pm - 7:00 pm.
- **East Hoffman Avenue** has a total of 88 legal on-street parking spaces. 19 of these spaces are metered along the south curbside of East Hoffman Avenue, and 38 spaces are metered along the north curbside of East Hoffman Avenue. Between South Pennsylvania and Irmisch Avenues, there is a restricted curbside parking area for taxis only. These taxi spaces were not considered towards the parking survey. The observed weekday peak utilization is 60 parking spaces (or 68%) during 12:00 noon - 1:00 pm. The observed Saturday peak utilization is 21 parking spaces (or 24%) during 6:00 pm - 7:00 pm.

Parking Lot Parking Surveys

GPI has designated each of the parking lots within the downtown area a letter and parking type color pattern to distinguish how each parking lot been classified. The Long Island Rail Road commuter lots for instance, indicated in orange, are labeled as lots B & C in Figure 5. The municipal lot labeled A was considered in the total parking lot counts

via aerial mapping. However, parking lot A was excluded from the surveys due to its distance from the central portion of the downtown. During the weekday surveys, GPI surveyed lots D-J, beginning at lot D and ending at lot J. Parking lot observation ranged between one – three passes within each hour. For Saturday surveys, GPI began the study observing from the larger lot E of 54 spaces and ended by crossing from D – E to both 19 spaced lots. The block-by-block observed peak period, number of legal parking spaces, and observed parking utilization are noted below:

Commuter Lot Parking Survey

Commuter Lots B East, B West & C were observed from 9:30 am to 10:30 am, confirming 233 in the eastern B lot, 192 in the western B lot and 130 parking spaces under the Long Island Rail Road train trestle. On Thursday, 6/20/2019 B East contained 206 utilized spaces (or 88%), lot B West contained 155 (or 81%) and the Trestle lot contained 117 (or 90%). On Friday, 6/21/2019 B West contained 178 utilized spaces (or 76%), lot B East contained 117 (or 61%) and the Trestle lot contained 118 (or 91%). On Thursday, 6/27/2019 B East contained 151 utilized spaces (or 65%), lot B West contained 138 (or 72%) and the Trestle lot contained 106 (or 82%).

It should be noted that school session had ceased for summer vacation for most of New York, during the last week of the survey.

Municipal Lot Parking Survey

Table 10 and 11 depict the municipal lot utilization percentages during a typical weekday and Saturday within the downtown area. Average utilization for Thursday curbside parking was 55%. Average utilization for Saturday curbside parking was 44%. During the peak hour for Thursday from noon – 1:00 pm, 60% of the 346 spaces were occupied. This value was also repeated at 3:00 pm – 4:00 pm. During the peak hour for Saturday from 8:00 pm – 9:00 pm, 52% of the 346 spaces were occupied.

- **Municipal Lot D** has a total of 34 legally available parking spaces. The observed weekday peak utilization was 5 parking spaces (or 15%) during 2:00 pm - 4:00 pm. The observed Saturday peak utilization was 23 parking spaces (or 68%) during 8:00 pm - 9:00 pm.

Table 10: Weekday (Thursday) Municipal Parking Lot Utilization

Hourly Counts	Total	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	Average	Utilization Percentage
D	34	5	3	5	5	3	0	0	0	3	8%
E	94	47	45	56	53	51	55	57	53	52	55%
F	118	79	80	77	80	78	56	46	32	66	56%
G	36	36	36	36	35	36	34	29	31	34	95%
H	20	13	11	11	11	11	8	6	4	9	47%
I	18	18	15	18	14	15	13	14	14	15	84%
J	26	8	8	9	8	7	9	24	24	12	47%
										Avg	55%

Table 11: Weekend (Saturday) Municipal Parking Lot Utilization

Hourly Counts	Total	5-6PM	6-7PM	7-8PM	8-9PM	Average	Utilization Percentage
D	34	10	5	21	23	15	43%
E	94	50	56	77	79	66	70%
F	118	18	22	24	24	22	19%
G	36	19	13	20	23	19	52%
H	20	5	2	1	2	3	13%
I	18	16	11	11	11	12	68%
J	26	19	13	17	18	17	64%
						Avg	44%

- **Municipal Lot E** was observed as three lots with a total of 92 legally available parking spaces, separated into Eastern and Northern 19 spaced lots and a 54 spaced Lindenhurst Commons parking lot. The observed weekday peak utilization was 17 parking spaces (or 89%) during 6:00 pm - 7:00 pm for the Eastern lot, 10 parking spaces (or 53%) during 6:00 pm – 8:00 pm for the Northern lot, and 41 parking spaces (or 73%) during 3:00 pm – 4:00 pm for the Lindenhurst Commons lot. The observed Saturday peak utilization was 19 parking spaces (or 100%) during 7:00 pm - 9:00 pm for the Eastern lot, 19 parking spaces (or 100%) during 8:00 pm – 9:00 pm for the Northern lot, and 41 parking spaces (or 73%) during 8:00 pm – 9:00 pm for the Lindenhurst Commons lot.
- **Municipal Lot F** has a total of 118 legally available parking spaces. The observed weekday peak utilization was 80 parking spaces (or 68%) during 1:00 pm - 2:00 pm, and 3:00 pm – 4:00 pm. The observed Saturday peak utilization was 24 parking spaces (or 20%) during 7:00 pm - 9:00 pm.
- **Municipal Lot G** has a total of 36 legally available parking spaces. The observed weekday peak utilization was 36 parking spaces (or 100%) during 12:00 noon- 2:00 pm, and 4:00 pm – 5:00 pm. The observed Saturday peak utilization was 23 parking spaces (or 64%) during 8:00 pm - 9:00 pm.
- **Municipal Lot H** has a total of 20 legally available parking spaces. The observed weekday peak utilization was 13 parking spaces (or 65%) during 12:00 noon - 1:00 pm. The observed Saturday peak utilization was 5 parking spaces (or 25%) during 5:00 pm - 6:00 pm.
- **Municipal Lot I** has a total of 18 legally available parking spaces. The observed weekday peak utilization was 18 parking spaces (or 100%) during 12:00 noon - 1:00 pm and 2:00 pm - 3:00 pm. The observed Saturday peak utilization was 16 parking spaces (or 89%) during 5:00 pm - 6:00 pm.
- **Municipal Lot J** has a total of 26 legally available parking spaces. The observed weekday peak utilization was 24 parking spaces (or 92%) during 6:00 pm - 8:00 pm. The observed Saturday peak utilization was 19 parking spaces (or 73%) during 5:00 pm - 6:00 pm.

With the exclusion of parking lots A, B & C; the sum of total curbside parking spaces and lots D through J total is 697 parking spaces. Figure 6 and Figure 7, both illustrate a map compiling the data from this survey to illustrate parking utilization for the municipal lots and streets during the peak hour. The overall Thursday peak hour was determined to be from 12:00 noon until 1:00 pm, with 385 out of 697 (55%) spaces utilized. Although Saturday curbside parking consisted of a higher utilization from 5:00 pm to 6:00 pm, there was an overall greater utilization of parking within the downtown during the hour of 8:00 pm to 9:00 pm, with 345 out of 697 (50%) spaces utilized.

Conclusion

The study found that the parking utilization for the curbside parking spaces averaged 47% for a typical weekday and 46% for a typical weekend. For the municipal parking lots, the study found that the utilization averaged 55% for a typical weekday and 44% for a typical weekend. Further, the overall average weekday parking utilization for commuter lots was at 78%.

These results are broadly consistent with the parking utilization assessment conducted by the Suffolk County Department of Economic Development and Planning in early December 2015, with observed average overall utilization rates of 49% for curb-side parking, 45% for municipal parking lots, and 80% for the commuter parking lots.

These parking utilization rates indicate that there is adequate parking available within the Lindenhurst downtown to support current uses. However, with the ongoing revitalization of the downtown and numerous new businesses moving in, it is expected that there will be more downtown visitors and hence increased parking demand. The Village should consider evaluating their parking demand and supply as and when warranted by the upcoming developments within the downtown.

EXISTING CONDITIONS INVENTORY

PARKING UTILIZATION MAP – THURSDAY PEAK HOUR

Peak Hour Determined: 12:00 Noon – 1:00 PM
Total Curbside Parking – 186 Parking spots utilized out of 351.
Total Municipal Lot Parking – 206 Parking spots utilized out of 346.
*Parking Lots A, B & C have been excluded for the time periods of 12-8PM on Thursday & 5-9PM on Saturday.

Municipal Parking
ThursdayValue
- 0-19 %
- 20-39 %
- 40-59 %
- 60-79 %
- 80-99 %
- 100 %

Figure 6: Curbside, Municipal and Commuter Parking Weekday (Thursday) Peak Hour Utilizations

EXISTING CONDITIONS INVENTORY

PARKING UTILIZATION MAP – SATURDAY PEAK HOUR

Peak Hour Determined: 8:00 – 9:00 PM
Total Curbside Parking – 177 Parking spots utilized out of 351.
Total Municipal Lot Parking – 180 Parking spots utilized out of 346.
*Parking Lots A, B & C have been excluded for the time periods of 12-8PM on Thursday & 5-9PM on Saturday.

Municipal Parking
SaturdayValue
- 0-19 %
- 20-39 %
- 40-59 %
- 60-79 %
- 80-99 %
- 100 %

Figure 7: Curbside, Municipal and Commuter Parking Weekend (Saturday) Peak Hour Utilizations

D. Walkability Improvements Summary

The table below provides summarized information for each improvement recommended within the study, including the type of improvement, its proposed phasing in terms of short term (up to 2 years) or mid-long term (2+ years), planning-level cost estimates and agency coordination expected while implementing the improvements.

The planning level cost estimates are based on similar projects and most recent available pricing information as of August 2019. The estimates only include construction costs and don't include costs associated with detailed design and inspection of the improvements. The cost estimates reflect standard project conditions, and therefore exclude items that have substantial variation or that require design details based on actual site conditions.

Table 12: Walkability Improvements Summary

Theme	Improvement	Planning-Level Cost Estimate	Agency Coordination	Implementation Phasing
Pedestrian Safety Treatments	Curb Bulb-outs	$50,000 / location (both sides of the street)	Suffolk County Department of Public Works (DPW), Lindenhurst Fire Department, Our Lady of Perpetual Help church, and businesses adjoining the improvement locations.	Short/Mid-term depending on the location
	Pedestrian Warning Signs with RRFB	$30,000 / location		
	Pedestrian Signal Heads	$10,000 / crosswalk, includes countdown timer, ADA push buttons and wiring		
	Median Island	$25,000 for 100 feet long by 6 feet wide		
Pedestrian Infrastructure	Sidewalk	$12,000 for 100 feet long by 5 feet wide, includes curbing	Suffolk County Department of Public Works (DPW)	Short-term
	Curb Ramps	$10,000 per ramp, ADA compliant		Short-term
	New Standard Crosswalk (with green color fill-in)	$3,000 each		Short-term
Bike Infrastructure	Bike Racks	$200-$450 each for loop / grid type rack	MTA Long Island Rail Road	Short-term
	New Bike Lane Stripping	$100-150 / 100 linear feet	Suffolk County Department of Public Works (DPW)	Short-term
	Bike Lane Markings	$180-200 / location		Short-term
Parking Improvements	Parking Restriping	$200 / 100 linear feet	MTA for parking under the LIRR Trestles	Short-term
Streetscape Improvements	Street Lighting	$3000-$5000 each with installation	Suffolk County Department of Public Works (DPW) – along County roads,	Short-term
	Street Benches	$500-$900 each	Village Departments, Mayor's Beautification Society, Business Improvement District (BID), Chambers of Commerce (CoC), LEDC	Short-term
	Commercial Trash Receptacles	$200-$500 each		Short-term
	Trash Receptables with solar powered trash compactors	$3000-$4000 each		Short-term
Wayfinding Improvements	Digital Wayfinding Kiosk	$10,000 with 3 years of technical support and management software	Suffolk County Department of Public Works (DPW) depending on the location, BID, CoC	Mid-Long Term
	Wayfinding Directional Signs	$150-300 for a 3'x4' aluminum sign		Short-term

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