Wilmington Initiatives

Pedestrian and Transit Corridor Enhancements to King and Orange Streets

DRAFT DESIGN STUDY REPORT

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I. EXECUTIVE SUMMARY

This design study report provides the data, methodology, analysis, and recommendations for the King and Orange Street Pedestrian and Transit Corridor Improvements. The King Street and Orange Street projects originated from the Downtown Circulation Study conducted by JMT previously. This project is one of the key transportation projects being completed as part of the Wilmington Initiatives. It's emphasis on Transit and Pedestrian Enhancements makes it an important project by providing additional modal choices for persons commuting into and out of the downtown area. The project ultimately affects the livability and vitality of the downtown area.

These two corridors in Downtown Wilmington currently carry at least 20% of the total transit trips for the entire DTC system. The current environment for transit patrons and pedestrians does not reflect the importance of these corridors as multimodal facilities. This design includes improvements to the following:

- Transit Facilities
- Pedestrian Facilities
- Street Trees and Landscaping
- Lighting and Signing
- Roadway Geometry

The proposed Alternatives for both King Street and Orange Street have been refined through review and comment by the Agency Team, DTC, Technical and Steering Committees, and the Public as part of the Wilmington Initiatives Community Outreach efforts.

The recommended improvements incorporate a combination of elements designed to create a specific identity for the two streets as transit corridors. Emphasis was placed on the upgrade and/or incorporation of the following specific amenities:

- Installation of transit shelters at all bus stops
- Widening of the sidewalks, ADA accessible curb ramps
- Upgraded surface treatment of sidewalks
- Installation of street trees
- Regularize roadway curblines and cartway lanes
- Incorporation of traffic calming elements

Preliminary construction cost estimates were generated based on the concept plans (see plans in Appendix). The proposed base transit corridor improvements to Orange Street are estimated to be **$1.44 million.** Additional improvements to the Orange Street corridor include:

▪ Site Furnishings	$0.2 million
▪ Lighting	$0.59 million
▪ Crosswalks	$0.34 million
▪ Roadway Upgrades	$0.25 million

The proposed base transit corridor improvements to King Street are estimated to be **$1.65 million**. Additional improvements to the King Street corridor include:

▪ Site Furnishings	$0.15 million
▪ Lighting	$0.53 million
▪ Crosswalks	$0.34 million
▪ Roadway Upgrades	$0.35 million

Issues to be resolved:

The study progression to date has identified a number of issues that will need to be resolved during the next phase of the project. These are issues that have surfaced during the collection and analysis of data. Although beyond the scope of the 20% design submittal, it is important to identify these issues for the benefit of future designers of the project. The issues include:

- Specific location and identification of **underground vaults, basements, or coal chutes** underneath of the existing sidewalks along both the King and Orange Street Corridors. Presence of these features may require revisions to the 20% design concepts.

- Review and approval of the **ADA facilities** by the Access Wilmington Board. All facilities proposed at this time have been coordinated with the ADA studies being completed, but have not received board approval.

- Coordination of the final design, implementation strategies, and maintenance for the proposed **custom bus shelters**. Coordination will be required with the City of Wilmington, DelDOT, DTC and the individual property owners.

- Continued coordination with DelDOT and DTC to identify specific **ITS facilities** to be incorporated into the designs for both the King and Orange Street Corridors.

- Specific recommendations for relocations and improvements to existing **drainage facilities** have not been identified but are recognized as important factors determining the ultimate implementation of the proposed curb lines. Of particular note are the areas of curb extensions or bulb outs.

- Further coordination will be required with the design team for the **New Castle County Courthouse**. The courthouse project affects the improvements in the 200 block of King Street.

- Further Coordination will be required with all consultants working on **adjacent projects** throughout both corridors. These projects include MLK Improvements (RK&K), 10th Street (Orth-Rogers), Rodney Square/Market Street (Pennoni), Downtown Signal Study (Orth-Rogers), and the Wayfinding Study (Mitchell Associates).

II. PROJECT HISTORY

PROJECT OVERVIEW

The King Street and Orange Street Pedestrian and Transit Corridor Improvements project was one of a host of projects identified as part of the Downtown Wilmington Circulation Study completed in 1997 by JMT. The project is being developed and designed through an agency team including the City of Wilmington, WILMAPCO, and DelDOT. Wilmington's Citywide Environmental Enhancement Plan has also targeted King and Orange Streets for aesthetic and pedestrian improvements.

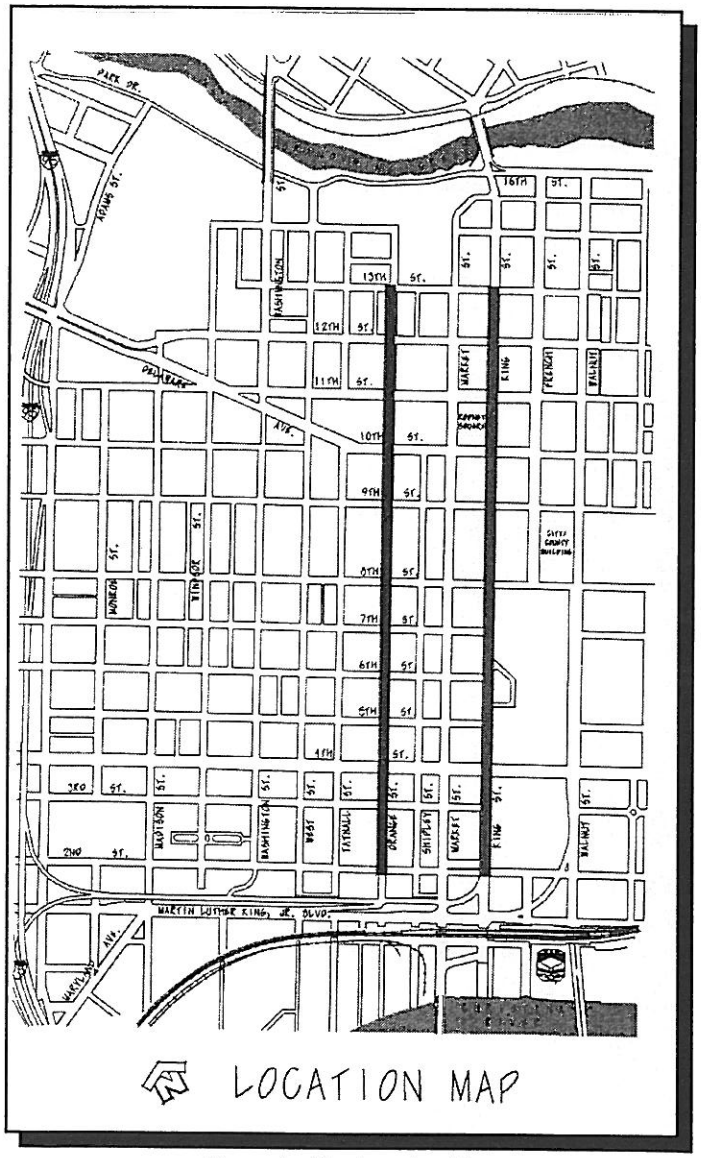


Figure 1 - Site Location Map

King Street and Orange Street represent the State of Delaware's busiest transit link, carrying nearly 3 million transit trips annually. King and Orange Streets carry nearly 20% of the region's transit trips, with approximately 800 bus trips per day traveling along King Street, alone. This project proposes major transit amenity upgrades reflecting the importance of the transit operation to the function and vitality of these two streets and the central business district. By making these upgrades, the physical infrastructure will support efforts to offer alternative modes of transportation rather than the dependency of owning and operating a single-occupant vehicle. King and Orange Street would connect to the improvements currently being planned, designed, and constructed at the Wilmington Train Station and Rodney Square (see Figure 1). Pedestrian improvements on both King and Orange Streets will, in addition to supporting transit, provide safer connections from surface lots to class B office space and between the Downtown and the Christina Riverfront. This project, in conjunction with other gateway treatments, will support redevelopment efforts throughout Downtown Wilmington.

The transit corridor improvements to King and Orange Streets will incorporate modifications to regularize the existing cartway geometry. The current roadway involves random and excessive lane widths. The regularization of the cartway will provide a more uniform facility for motorists, while providing additional space for transit and pedestrian facilities. These improvements will improve transit, pedestrian and environmental conditions by upgrading transit stop facilities, sidewalks and the overall streetscape within the public right-of-way from 2nd Street to 13th Street. Once completed, these improvements will maximize the ability for King and Orange Streets to function as the two major north/south transit spines for Downtown Wilmington. The focus of this study is to document the project

development from it's inception to the 20% planning development stage.

PROJECT GOALS

Transit-friendly streets provide a more even distribution of the use of the public space to accommodate all modes of transportation. This concept encourages the greater emphasis of space allocation to the pedestrian circulation areas. Pedestrian presence within the streetscape is an integral function to the vitality of the central business district of any city. Transit-friendly streets recognize this fact and place emphasis on the pedestrian to achieve an enhanced environment for all users of the downtown streets. Transit-friendly streets accomplish the following goals:

- Create a safe, functional, and aesthetically pleasing experience for transit patrons.
- Enhance the visual character of the street corridors.
- Enhance accessibility of transit to all patrons.
- Improve existing vehicular and pedestrian circulation.
- Increase potential opportunities for economic development.
- Establish a clear priority for transit vehicle operations.
- Reduce potential conflicts between vehicles and other users of the corridor.
- Create a strong pedestrian orientation providing comfort and convenience for the transit patron.
- Integrate the whole process of planning shared transit streets into a larger city development or livability-enhancing strategy.

PROJECT OBJECTIVES

In order to achieve these goals, specific objectives must be realized for the improvement of each component part of the public street. The component parts then begin to function in a coordinated fashion to create an environment favorable to all modes of transportation.

The specific project objectives for each component are as follows:

Transit Facilities
Utilize the transit facility improvements to reflect the importance of King and Orange Streets as major transit corridors. Provide for the safety and comfort of transit patrons year round.

Traffic Calming Elements
Investigate and incorporate traffic calming strategies to increase safety for transit users, pedestrians and motorists.

Pedestrian Facilities
Rethink the use of space along the corridor to place greater emphasis on the pedestrian as a user of the transportation system. Provide a continuous ADA accessible route along both corridors.

Landscaping
Utilize the landscaping to create a distinct identity for both King Street and Orange Street as major transit corridors, screen undesirable uses, and enhance the environment around transit facilities.

Lighting and Signing

Utilize supplemental lighting to increase safety and visibility for pedestrians at night. Signage should be clear, concise, and in conformance with the recommendations of the Wayfinding Study currently in process and DelDOT standards.

Site Furnishings/Streetscape

Design and place site furnishings to enhance both the functional use of the pedestrian space and pedestrian circulation patterns. Reduce visual clutter by consolidating existing vertical elements such as light poles, traffic signal poles, pedestrian signal poles, and utility poles, and grounded elements such as pay phones, newspaper boxes, and bike racks.

Roadway Geometry

Modify roadway geometry to maximize the safety and efficiency of the roadway while dedicating the maximum allowable space for pedestrian circulation.

III. METHODOLOGY

DATA COLLECTION

Topographic mapping was developed for both corridors from aerial photography taken in 1996. The photogrammetry was supplemented by field identification and location of more detailed items necessary for preliminary design. Data collection and site inventory investigations were conducted to create a photographic inventory and to verify that all existing information and site elements are indicated on the photogrammetry. Additional studies were conducted to obtain all information pertaining to all utility systems, tax map information, property and right-of-way lines, transit facilities, and future site development plans. This information was incorporated into the photogrammetry.

A project initiation meeting was held with the Delaware Transit Corporation (DTC). It was concluded from this meeting that DTC would organize a committee comprised of several departmental representatives to conduct the review and approval process of the transit oriented design issues. A draft copy of the DTC transit stop design guidelines were provided and used to develop the conceptual designs of King Street and Orange Street. These guidelines provide recommended criteria for the selection, placement, and layout of transit stop locations. The guidelines also provide information on shelter placement, installation, and minimum ADAAG dimensions. DTC also provided the most recent boarding and alighting counts along both corridors.

Traffic volume data was received from the Downtown Circulation Study. Accident data was collected from DelDOT to determine specific areas of safety concern along both corridors.

As part of the Wilmington Initiatives public outreach efforts, a number of meetings were held to hear comments, suggestions, and recommendations from the users of the King and Orange Street facilities. These meetings ranged from large separately scheduled public meetings to more focused meetings with community and special interest groups. The input from these meetings was condensed into specific issues to be analyzed and addressed in the design solutions.

ANALYSIS

Upon completion of the data collection, the design team proceeded to analyze the data based upon the goals and objectives set forth at the project initiation. Emphasis was placed first on incorporation of transit and pedestrian facilities and enhancements. Data collected to date was utilized to identify specific areas needing the greatest improvement, and those only needing minor enhancements.

FORMULATION OF RECOMMENDATIONS

Specific recommendations that were borne out of the analysis were then packaged to present a complete set of improvements that achieve the goals and objectives of the study. To allow for flexibility of implementation of the improvements, a base set of improvements was packaged for the purpose of cost estimating. This base set achieves the primary goals of the project in the most cost effective manor. Other recommended improvements which can serve to enhance the success of the project were then estimated for cost as optional items. It was determined that this strategy for implementation will allow the agency team to "pick and choose" the combinations of enhancements that best fit into the project schedule and funding parameters.

IV. EXISTING CONDITIONS

The following sections describe the general condition of existing elements and facilities and are applicable the entire project area of King Street and Orange Street. These specific elements and facilities were selected to undergo a detailed analysis due to their integral roles in the success or failure of a transit/pedestrian oriented environment.

TRANSIT FACILITIES

Transit activity within the King and Orange Street corridors is exceptionally high (see Fig. 1). In addition to Rodney Square, which serves as the "transit hub" of Downtown Wilmington, only two other transit shelters exist along King Street. These shelters are located on King Street between 7th and 8th Street and between 4th and 5th Street. Only one transit shelter exists on Orange Street which is located at the Del Tech Community College (DTCC). The only other transit oriented pedestrian amenity is a bench located on Orange Street between 5th and 6th Street. The most active transit stops are between 8th and 11th Street within both corridors. DTC standards dictate that a bus shelter is warranted at any bus stop which has more than 100 boardings or alightings per day.

Figure 2- Typical high pedestrian volumes at the Rodney Square transit stops.

The following tables illustrate the existing transit facilities and bus ridership information provided by DTC.

Table 1 - DELAWARE TRANSIT CORPORATION
Ridership on King Street as of October, 1998

King Street at...	Boardings	Alightings	Bus Shelter Present	Sidewalk width (m)
11th St. at King St.	1340	1621	Yes	2.5
10th St.	3866	3435	Yes	3.5
9th St.	47	235	No	3.5
8th St.	800	502	Yes	4.1
6th St.	73	118	No	4.1
5th St.	158	291	Yes	3.5
3rd St.	167	109	No	3.8

Table 2 - DELAWARE TRANSIT CORPORATION Ridership on Orange Street as of October, 1998				
Orange Street at...	Boardings	Alightings	Bus Shelter Present	Sidewalk width (m)
2nd St.	5	70	No	2.5
4th St.	16	181	Yes	3.0
5th St.	193	333	No	3.0
8th St.	235	438	No	2.8
9th St.	276	746	No	2.5
10th St.	107	463	No	3.0
10th St. at Orange St...	339	25	No	4.5

PEDESTRIAN FACILITIES

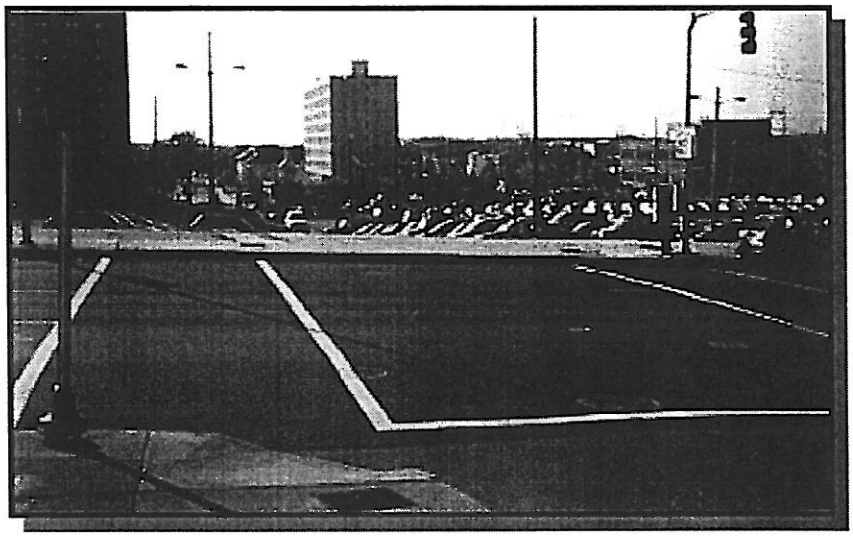


Figure 3- One of several intersections lacking ADA ramps at crosswalk locations.

Throughout the entire project area, many of the pedestrian facilities are in poor condition and in some cases are non-existent. Presently, a continuous ADA accessible route from 2nd Street to 13th Street does not exist and some intersections do not provide ADA access across King Street and Orange Street (see Fig. 2). Many intersections lack ADA ramps, or provide ramps that are non-compliant with ADA requirements (see Fig. 3). Pedestrian crosswalk striping at several intersections is not provided or is in very poor condition, causing low visibility of pedestrians crossing King and Orange Streets. All pedestrian crosswalk signals are vehicular traffic activated.

Overall, the sidewalks along King Street are in better condition than those along Orange Street due to the recent redevelopment in this area. The most questionable sections of sidewalk on King Street are located toward the south end of the corridor. Sidewalks and curbs along Orange Street from 4th Street to 10th Street are in relatively poor condition with severe cracking and misalignment of sidewalk sections. In many locations several pavement overlays of the roadway have reduced the curb height to only one to four inches. Many long sections of curb consist of old granite curbing which has become disjointed and poorly aligned. One location shows evidence that some of the old granite curbing has been "capped" with concrete and the concrete is beginning to break and chip away from the granite. This damage appears to

be a result of water damage and vehicles bumping against the curb. There are basically two mid-block crossings within the King and Orange Street corridors. One of the crossings is designated by signaling and striping and the other is not. The mid-block crossing on King Street is located between 8th and 9th Street and currently has no signals, signs or crosswalk stripes located. At this location, King Street crosses a major pedestrian spine connecting downtown offices to Market Street. During peak hours, this location is heavily traveled by pedestrians crossing King Street. On-street parking is also located on both sides of King Street on this block. Extremely dangerous situations have been observed here as pedestrians are forced to cross the street between parked cars. Parked cars do provide shelter for the pedestrian, but they also decrease visibility, especially when the pedestrian is at street level. As observed, this situation is very dangerous when pedestrians are attempting to cross the street. Cars attempting to parallel park or accelerate into the travel lanes present conflict points for pedestrians (see Figure 4).

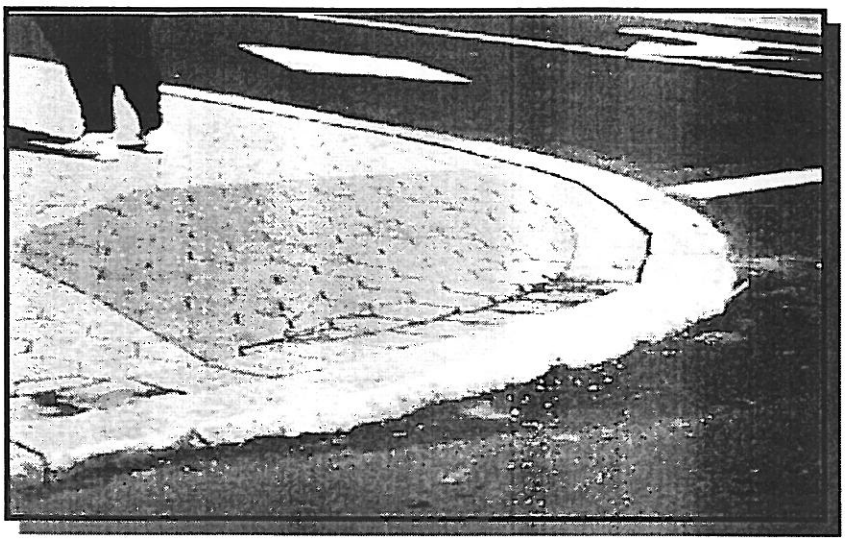


Figure 4- Improper curb heights at ADA ramps cause vertical barriers.

Figure 5- King Street mid-block crossing. This photo illustrates the dangerous situations that are presented to pedestrians attempting to cross King Street.

The second mid-block crossing is located on Orange Street between 10th and 11th Street and is designated with crosswalk striping, signage and an overhead flashing signal. The ADA ramps are improperly located at this mid-block crossing and are not aligned with the crosswalk striping. There is an existing "pull over" area along the west side of this block where cars and delivery vehicles are continuously parked. Vehicles have been observed double parked in this area (one vehicle parked in the bay and one parked in the travel lane). Vehicles parked on the approach side of the crosswalk create great difficulty for drivers to identify pedestrians entering and those already in the crosswalk. There is a designated transit stop on the east side of Orange Street at the entrance to the Dupont Building. The combination of a parked delivery vehicle on the west side and a bus on the east side, both on the approach side of the crosswalk, creates extremely limited visibility of pedestrians in the crosswalk (see Fig. 5).

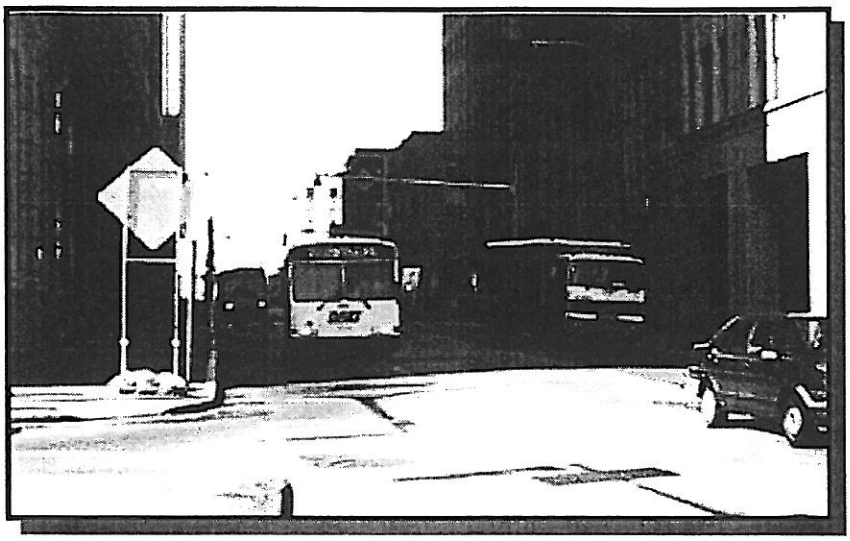


Figure 6- Looking south, this photo illustrates the dangerous congestion around the Orange Street mid-block crossing.

STREETSCAPE ELEMENTS

King Street has several areas with mature and healthy streetscape plant material (see Fig. 6). The Honey Locust on the east side of King Street between 2nd and 4th Street is in very good condition and is a good urban streetscape plant species. The east side of King Street, between 4th and 8th Street, only has four Japanese Zelkova trees that are well established. The remainder of the plant material on these blocks appear to be having difficulty getting established. The plant material on the east side of King Street, between 8th and 13th Street, are good streetscape species but they only account for two blocks of green space. The types of trees include Red Maple, Littleleaf Linden, Willow Oak, and Japanese Zelkova. The west side of King Street, between 2nd and 10th Street, only has two blocks with street trees, and of those, only three Pin Oak trees are an adequate street tree species. There are two other Littleleaf Linden trees, one of which is dead due to the evident choking habit of tree grates (see Fig. 7). The Rodney Square block of King Street is lined with Dawn Redwood trees. This is the only area on the west side of King Street, between 10th Street and 13th Street, with significant street trees.

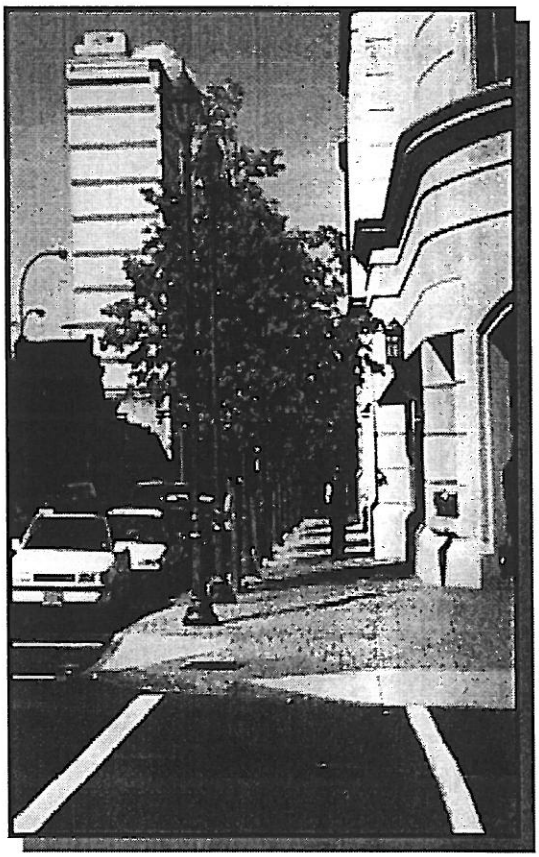


Figure 7- One of several notable streetscape areas along King Street.

Along Orange Street there are only three significant areas of

notable streetscape plant material. The Honey Locust and Japanese Zelkova trees between 2nd and 4th Street are in very good condition and are a good species for urban streetscape conditions. The Honey Locust trees used on the west side between 5th and 6th Street are a good street tree species and in good condition but they are located under overhead utilities and the typical 'V' shaped pruning is becoming highly noticeable. The third area along Orange Street is located between 12th and 13th Street. Bradford Pears are used in this area and several other locations. These trees are in good condition but they are not a species conducive to urban streetscape conditions and are prone to severe splitting in normal wind, snow and ice conditions. These trees have been used in several other locations.

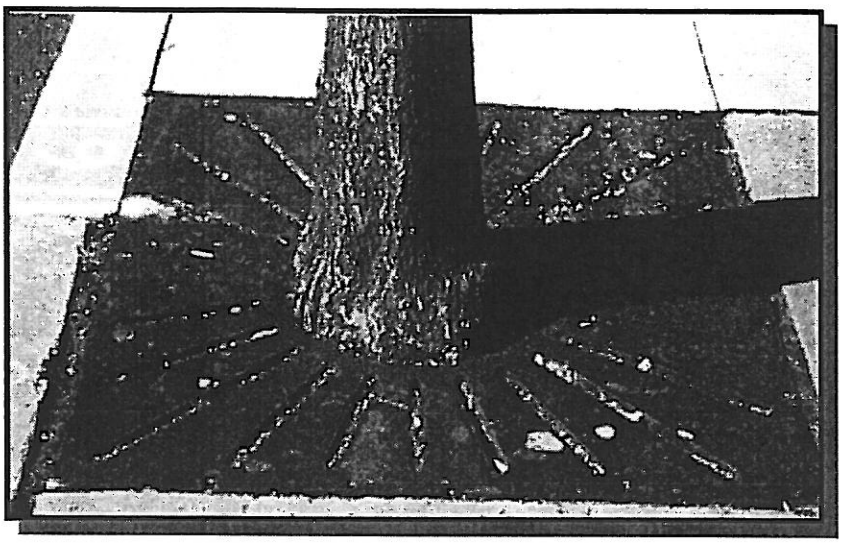


Figure 8- Unmaintained tree grates will eventually choke and kill a street tree as this one has.

ARCHITECTURE

There is a wide range of architectural styles and facade materials used within the two corridors. As a general classification, the earlier architectural styles are located in the last few blocks at the north and south ends of the corridors. The more contemporary and progressive architectural styles are generally located within the 8th to 12th Street blocks along both corridors. Brick, concrete and glass are the most common architectural materials used at the pedestrian level.

LIGHTING AND SIGNAGE

Currently, with the exception of a few areas, the pedestrian sidewalk lighting is provided by overhead street lights. The sidewalk along the MBNA building (see Fig. 6) is the only area with ornamental pedestrian lights within the limits of King and Orange Street . The existing signage along both corridors consists of the regulatory and directional traffic signs with DTC Route number signs located at each transit stop.

SITE FURNISHINGS

A chaotic scheme of vertical elements exists in the immediate vicinity of most intersections. The over-abundance of these elements including traffic signal poles, pedestrian crosswalk signal poles, light poles, utility poles, telephones, mailboxes, and newspaper boxes serves to greatly reduce the amount of spaces for pedestrian circulation at intersections and around transit stops.

ROADWAY GEOMETRY

Existing travel lane widths along King and Orange Street range from ten to over fifteen feet with irregular lane widths and no pavement markings in a few areas. Twelve of the thirteen intersections on King Street

and seven of the twelve intersections on Orange Street are signalized.

The following tables illustrate the King Street and Orange Street roadway data collected from site inventories and data analysis.

Table 3 - KING STREET ROADWAY GEOMETRY (meters)				
King Street	Roadway Width (m)	Sidewalk Width (m) (eastside, westside)		Right-of-Way Width (m)
2ND St. to 4th St.	12.2	3.9	3.9	19.9
4th St. to 5th St.	17.4	4.8	3.9	26.1
5th St. to 6th St.	13.7	2.4	3.9	19.9
6th St. to 8th St.	17.4	4.8	3.9	26.1
8th St. to 9th St.	12.5	3.6	3.9	19.9
9th St. to 10th St.	12.2	3.9	3.9	19.9
10th St. to 11th St.	14.6	3.9	4.6	23.0
11th St. to 13th St.	12.2	3.9	3.9	19.9

Table 4 - ORANGE STREET ROADWAY GEOMETRY (meters)				
Orange Street	Roadway Width (m)	Sidewalk Width (m) (eastside, westside)		Right-of-Way Width (m)
MLK Blvd. To 8th St.	9.1	3.0	3.0	15.1
8th St. to Girard St.	9.1	3.0	3.0	15.1
Girard St. to 9th St.	10.9	1.1	3.0	15.1
9th St. to 10th St.	9.1	3.0	3.0	15.1
10th St. to 11th St.	12.0	3.0	2.5	15.1
11th St. to 12th St.	10.9	3.4	3.9	18.1
12th St. to 13th St.	7.3	3.9	3.9	15.10

PARKING

There is a wide variety of on-street parking configurations and regulations on King Street. Along King Street, on-street parking is designated on one side or the other, and, in several cases, both. Along Orange Street on-street parking is located on the west side with the exception of the east side parking on the 9th Street to 10th Street block. Generally, on-street parking is located on the opposite side of the street from all the transit stops. The combination of this arrangement and the lack of dedicated bus bays frequently reduces the amount of effective travel lane area. Along both corridors, many curbside locations have been repeatedly identified as areas where drivers are afforded the "opportunity" to cheat an additional parking space by illegally parking their car or service/delivery vehicle because space is provided. Typically these areas are located at the intersections. This problem increases the potential of vehicle/vehicle or vehicle/pedestrian conflicts.

ONGOING DEVELOPMENT

Currently, there are sites undergoing construction or are in design, that have impacts upon the King and Orange Street projects. The Wyndham Hotel renovation on King Street has been completed as has the new DTCC building on Orange Street. There are also several additional sites that are scheduled for site development in the near future which include the Martin Luther King Jr. Boulevard improvements, the Wilmington Dry Goods property, the New Castle County Courthouse, and improvements to Rodney Square. The King and Orange Street projects will coordinate closely with each of the aforementioned projects to ensure a cohesive design.

V. RECOMMENDED IMPROVEMENTS BY INDIVIDUAL ELEMENTS

A streetscape study was conducted to locate and identify all pedestrian amenities within the two corridors. A partial list of these amenities include all plant material, pedestrian lighting and crosswalk signals, trash receptacles, benches, mail and newspaper boxes, sidewalk materials and patterns, and transit facilities.

Architectural studies were conducted to identify the relationship of the many different architectural facade styles, to include the style of other structural elements within the project limits such as bus shelters. This was conducted in an effort to ensure that a cohesive design is established between the proposed streetscape elements and the diverse character of the existing architecture.

Geometric studies were conducted to identify existing curb alignments, lane configurations, peak-hour traffic volumes, signal and signage control, and access point locations. A parking study was conducted to identify and locate on-street parking volumes, regulations, and needs.

After conducting the site inventory and data collection, several conceptual plans were developed. These concepts were refined through the processes of design team meetings and public meetings. The alternatives currently being refined for each corridor were generated primarily by incorporating traffic calming elements and methods. This resulted in the ability to provide wider sidewalk widths and create other niches for additional transit/pedestrian amenities.

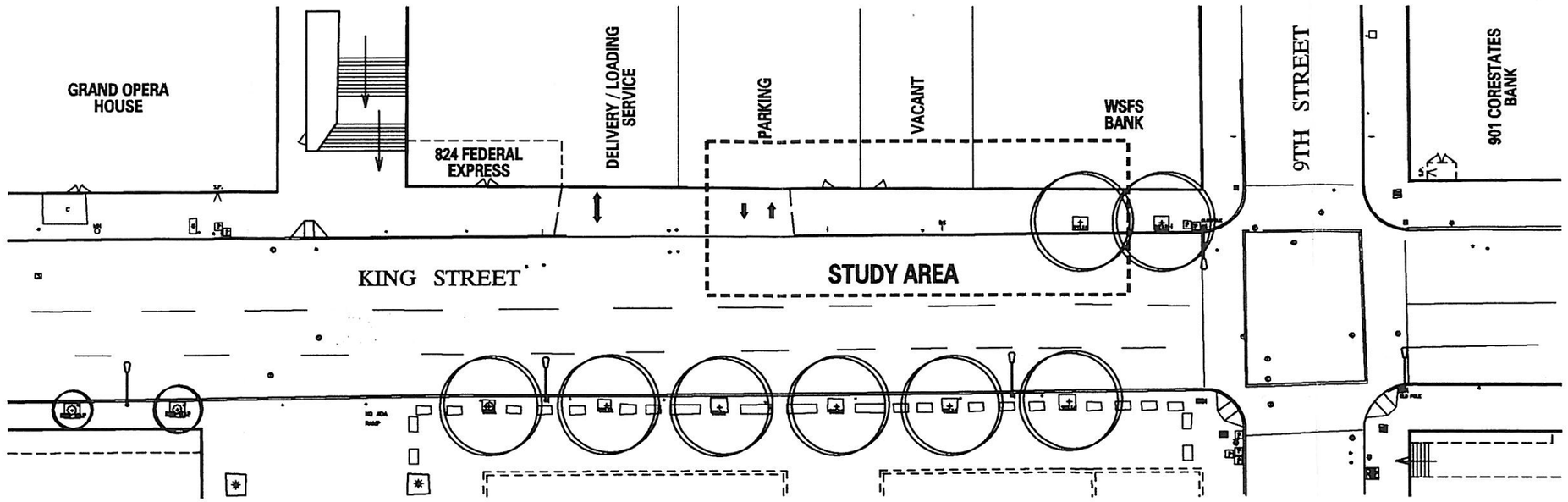
To initiate the concept development process, many design standards and assumptions were made to clarify the parameters within which the concepts could be developed. Some of the standards were developed by participating agencies, while others are based upon previous design studies conducted by other consultants. The following is a listing of some of those followed.

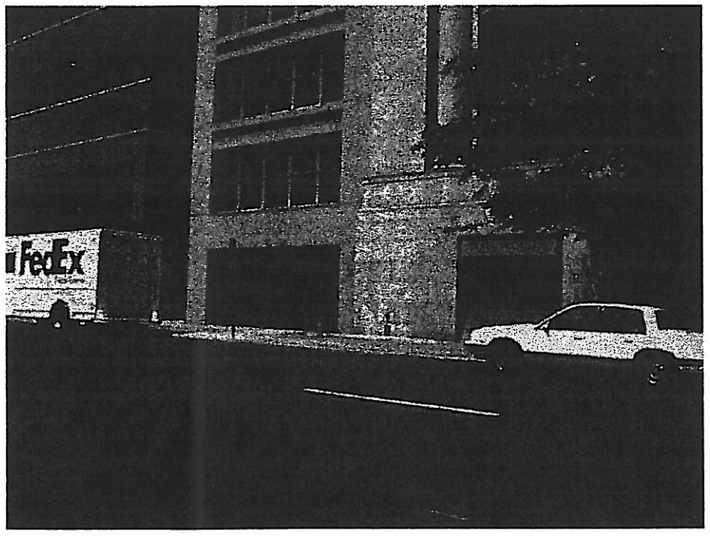
- Maximum 11' (3.4 m) wide roadway travel lanes, where feasible
- Parallel parking dimensions of 7' (2.1 m) by 20' (6.1 m)
- Parallel parking spaces a minimum of 20' (6.1 m) from any roadway intersection
- Parallel parking spaces a minimum of 15' (4.6 m) from any driveway entrance
- Crosswalk widths minimum of 12' (3.6 m)
- Pedestrian scale decorative light poles spaced 70' +/- (21.3 m) on center
- Minimum of 7.8' +/- (2.4 m) wide sidewalk area for bus shelter placement
- Minimum of 10.2' +/- (3.1 m) wide sidewalk area for street tree placement
- Minimum sidewalk width of 13.7' +/- (4.2 m) for street tree and shrub placement
- ADA accessible corridor including curb ramps at all intersections and driveways

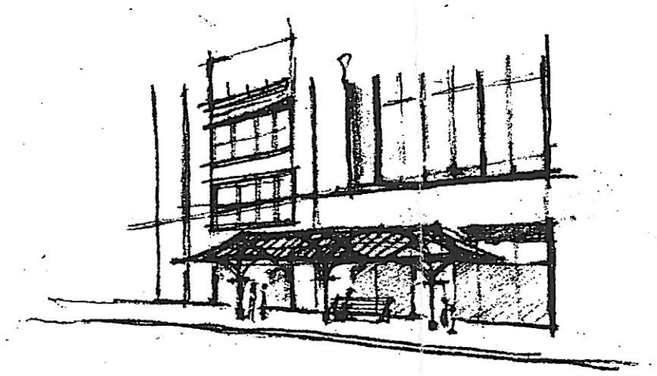
TRANSIT FACILITIES

The design alternatives include the addition of transit shelters at all transit stops. DTC has developed the standard shelter design to be utilized throughout Wilmington. The shelter includes a standing seam pitched metal roof. Along the Orange and King Street corridors, the majority of transit stops are proposed to use this new shelter design. There are select transit stops that are limited by either horizontal spacing, or are adjacent to unique architecture that warrants a specialized shelter design. Homsey Architects has completed conceptual shelter designs for these select stops. The selected stops include the following:

- 9th Street and King Street
- 10th Street and King Street
- 8th Street and Orange Street
- 9th Street and Orange Street
- 10th Street and Orange Street



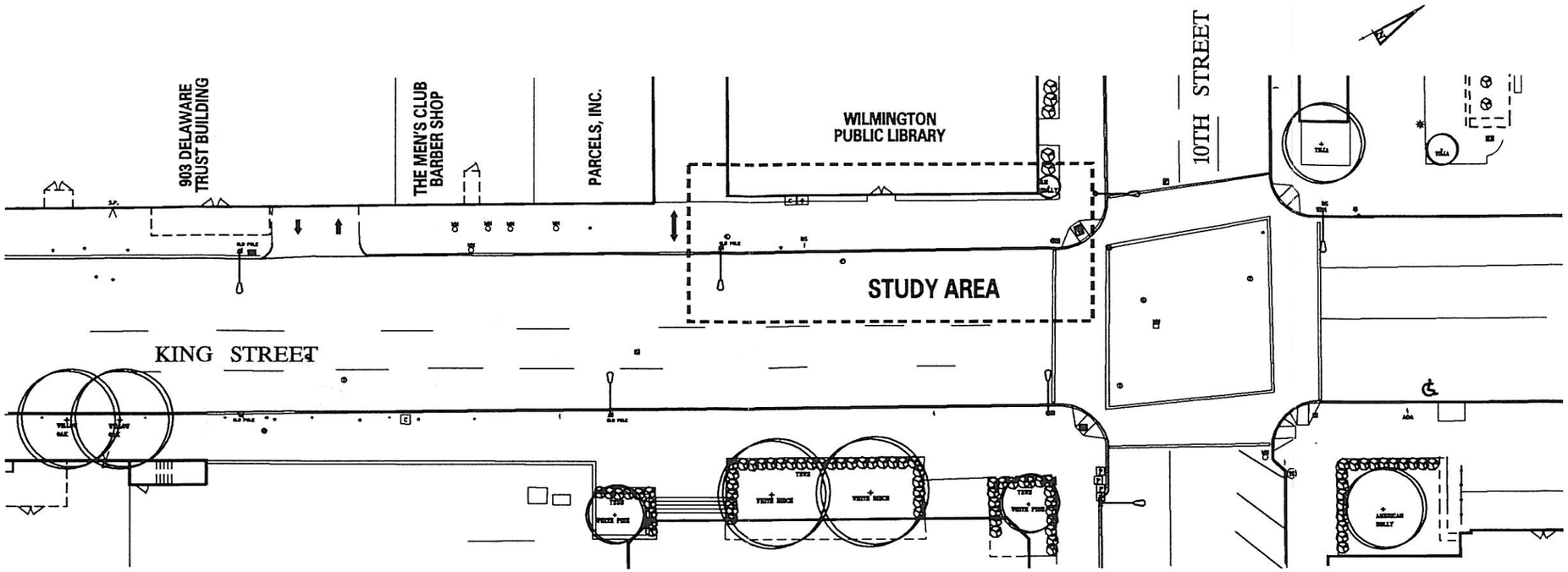


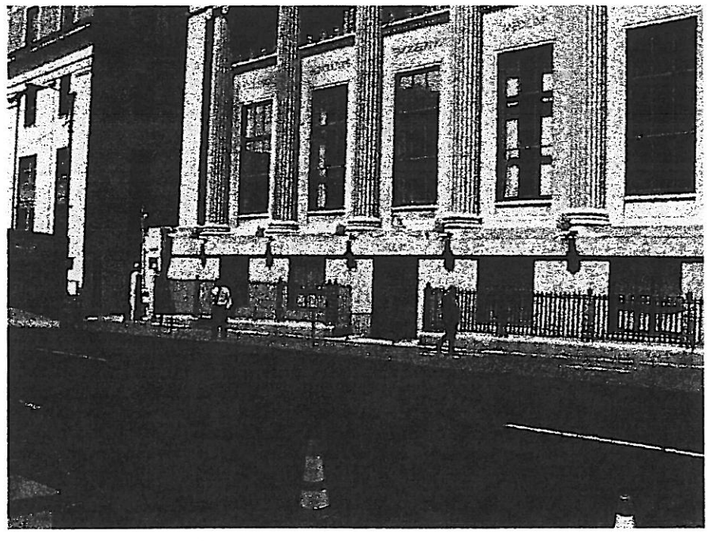


SKETCH A

Limited boardings at this stop indicate that a fully enclosed bus shelter may not be necessary. Full height windows on the first floor of the buildings limit the type of structure that could be installed. Access to the fire protection standpipe must be maintained. A light weight canopy would contrast nicely with the massive, heavy building facades and provide cover for bus riders.

9th AND KING STREET

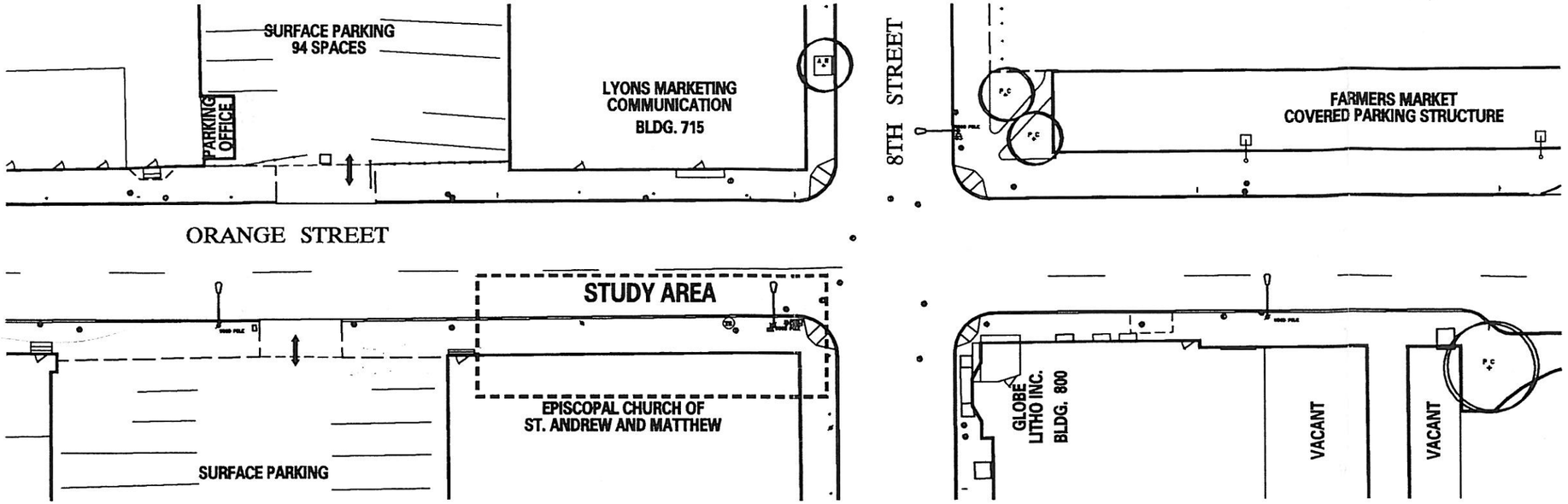


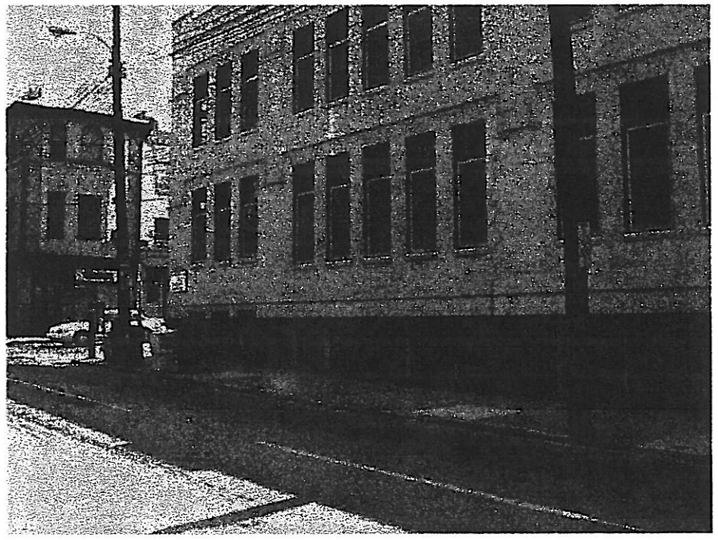


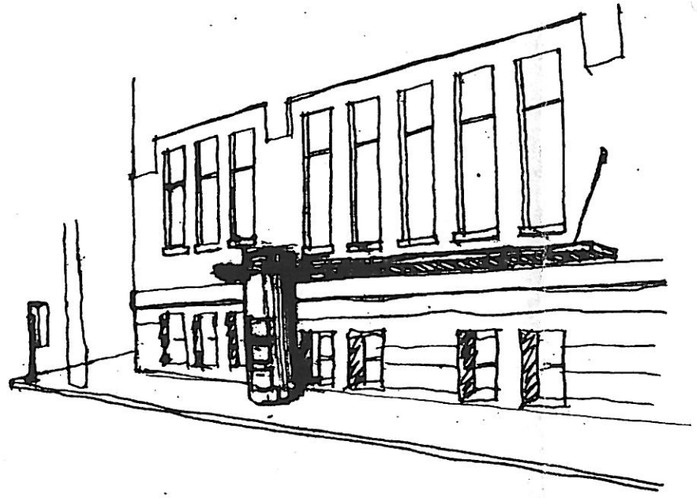
SKETCH A

Due to the proximity to Rodney Square the bus shelter may want to continue the style of the existing shelters. Design constraints in this area include the existing library fence and first floor windows. The historic nature of the library building and security for children should be resolved by the design of the shelter. The large ridership numbers at this stop indicate a strong need for a enclosed shelter.

10th AND KING STREET



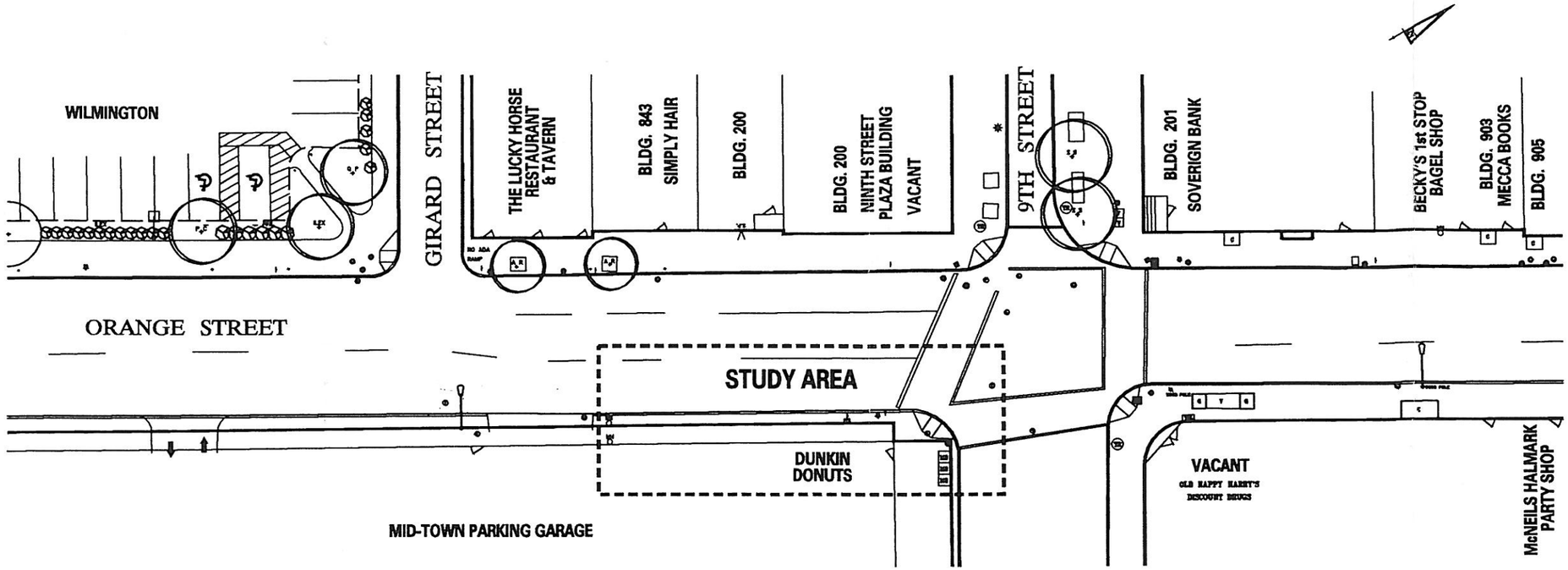


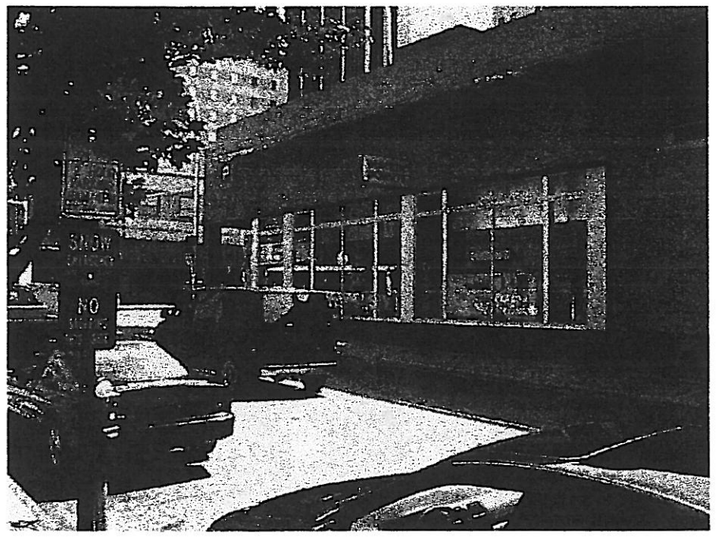


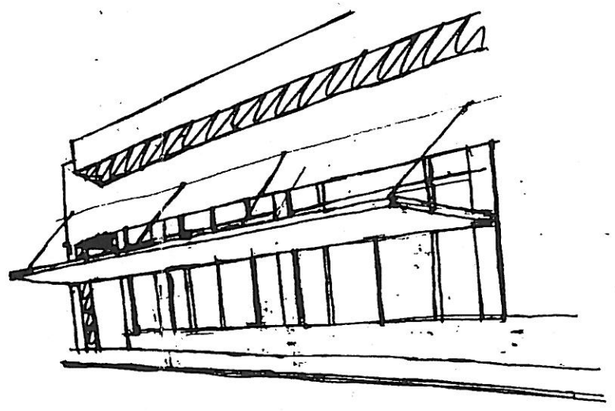
SKETCH A

A canopy style shelter can be proposed to minimize conflicts with ground level windows and preserve sidewalk width. A newsstand could be incorporated into the design to minimize clutter on the street corner and provide advertising and community bulletin space.

8th AND ORANGE STREET

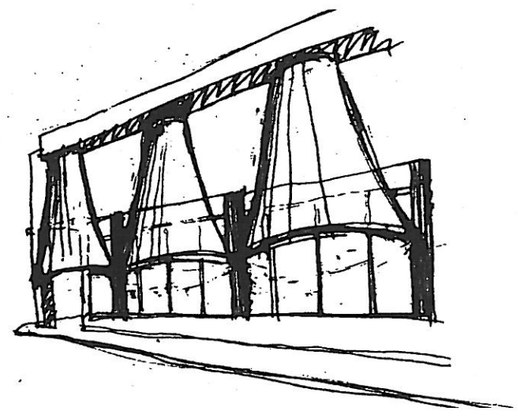






SKETCH A

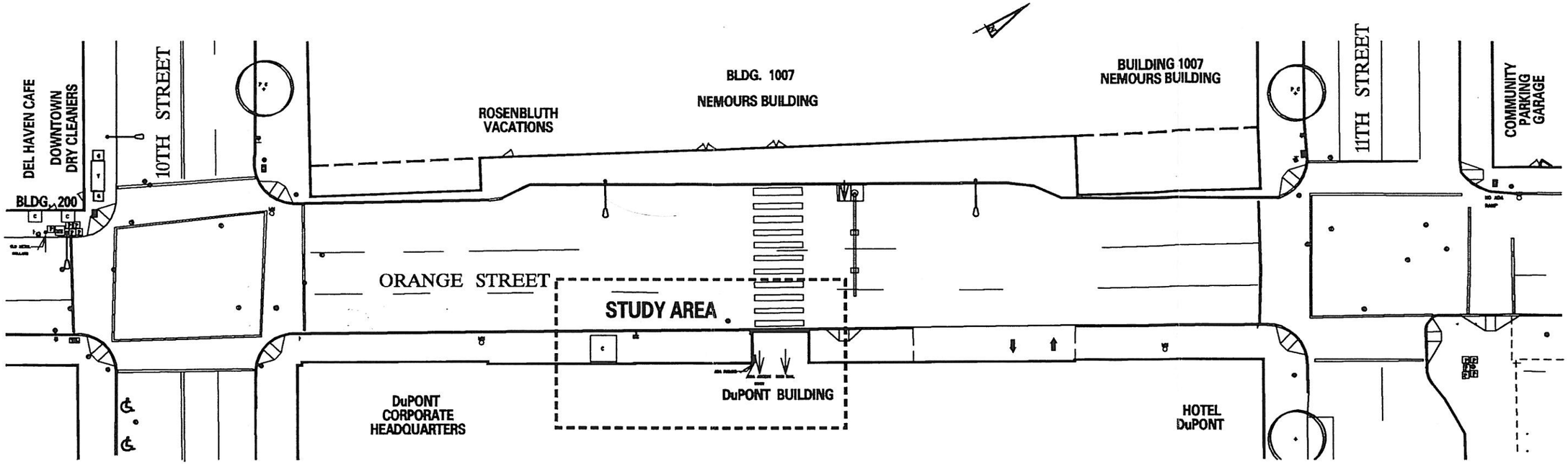
A simple cantilevered canopy can maintain sidewalk space and keep the view open into retail space. Light colored metal should compliment the existing windows and architectural detailing.

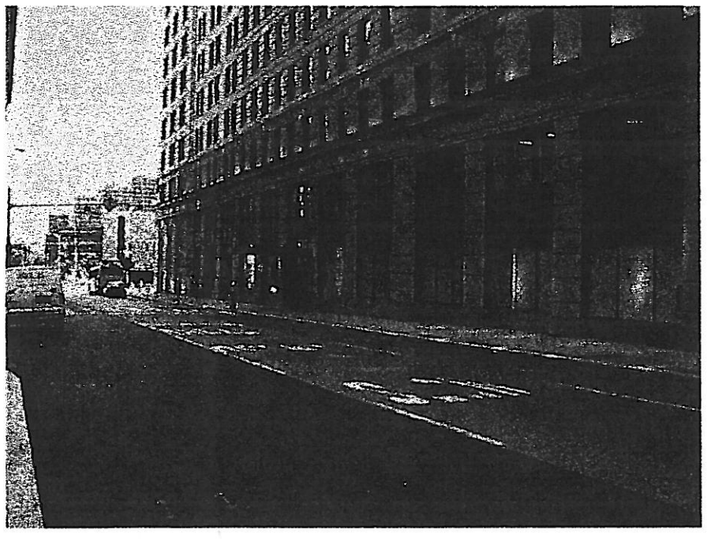


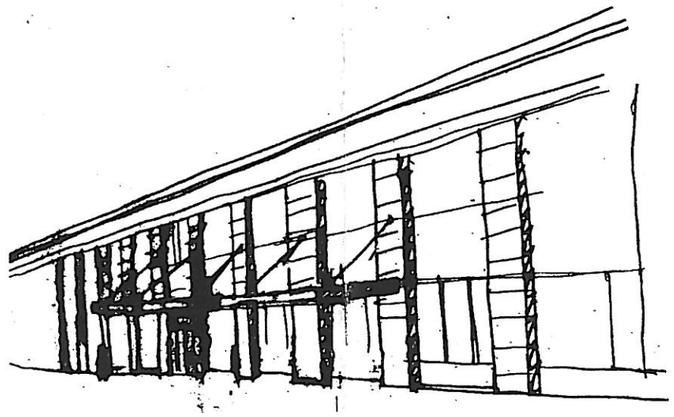
SKETCH B

A series of tensile fabric structure canopies could add interest and provide cover for bus riders. The fabric should be translucent to allow plenty of light into the stores. More colorful and fanciful design that could help the bland building facade.

9th AND ORANGE STREET







SKETCH A

A continuation of the exiting canopy covering the entrance to the DuPont building. Canopy could extend past several bays of windows to add shelter capacity. Construction of a freestanding shelter is limited due to ground level windows.

10th AND ORANGE STREET

The Orange and King Street corridors are important transit connections to the Wilmington Central Business District and should be made to be as efficient as technology allows. The implementation of an Intelligent Transportation System (ITS) is today's state-of-the-art technology that can help to achieve maximum efficiency of a transit system.

There are many different technologies on the market that may be incorporated into an ITS system. This report does not make any one recommendation, but serves to highlight various systems. The following is a brief listing of some of those systems.

- **Vehicle location devices** to track the location of all busses. This can be accomplished with a Global Positioning System (GPS) technology.

- **Advance Routing (flex-routing) and scheduling.** These are used to optimize the bus routes. Through this system the transit vehicles operate more efficiently. The greater efficiency allows the vehicle fleets to reduce in size.

- Patron information can be provided through **kiosks or other information devices**. Transit patrons can be provided with real time information to tell them if a particular bus is running on time.

- **Fare collections can be accomplished at a kiosk.** Card systems can be implemented so patrons are not forced to carry cash when purchasing tickets. This system can be tracked to determine how many card users are using the cards and where they are using them. Travel patterns can be monitored and system routing can be optimized based on patterns witnessed. The card systems also speed up overall system operations.

- **Bus tracking** can be tied into the downtown traffic signals in order to optimize the transit routes and keep transit vehicles moving along. This would make transit quicker and therefore, more appealing.

- **Silent alarms** can be placed on the transit vehicles to warn the police of an incident occurring on the bus.

- A **traffic management center** can be established to monitor, schedule and route public transportation. This benefits both the user and the system operators.

- **Kiosks** can be patron interactive and provide information such as schedules, cost, routes, amenities, etc.

PEDESTRIAN FACILITIES

Wider sidewalk widths can be achieved by reducing travel lane widths and eliminating unnecessary travel and turning lanes. Analysis of the existing pedestrian facilities shows that a great majority of the sidewalk widths can be sufficiently increased to meet the requirements for providing streetscape plant material and transit stop shelters. Wider sidewalks also allow street trees to obtain mature canopies with minimal utility maintenance pruning, which greatly increases the aesthetic quality of any streetscape. Reducing travel lanes to eleven feet and maintaining seven foot wide on-street parking lanes would make more room available for increased sidewalk widths. Increased sidewalk widths and sidewalk "pockets" can also be

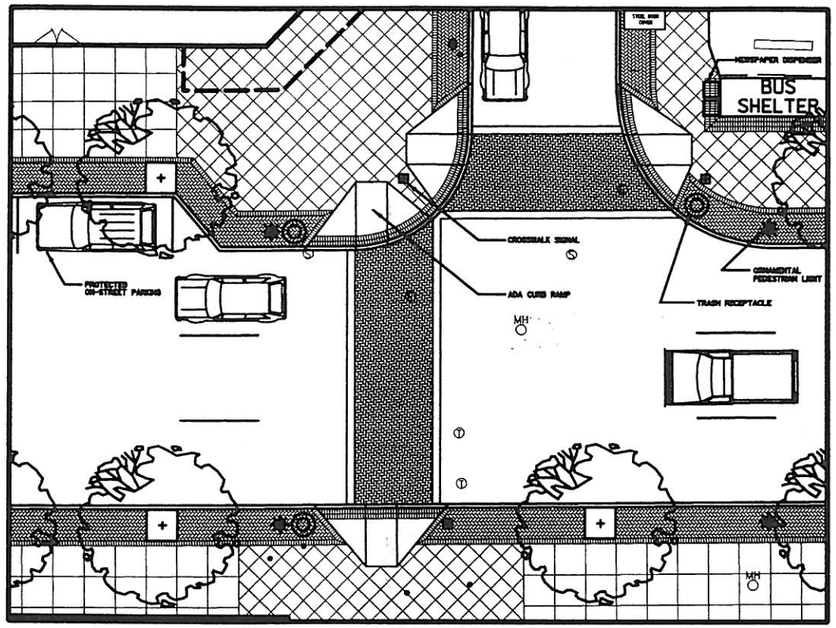
created with the option of incorporating traffic calming elements such as curb extensions (bulb-outs) and speed tables. All locations requiring crosswalks are proposed to be highly visible twelve foot wide pedestrian crosswalks, constructed as cast-in-place concrete and pavers. A continuous ADA accessible route is proposed on the east and west side of both King and Orange Streets from MLK Boulevard to 13th Street. All intersections and mid-block crossings will provide ADA compliant ramps and crosswalks.

Traffic activated crosswalk signals create more difficult situations for the pedestrian attempting to cross King and Orange Streets, especially during peak traffic hours. Favoring the automobile, this type of signalization lengthens the phase of the traffic signals and does not lend itself to projecting a transit/pedestrian oriented environment. This also increases the probability that a pedestrian will attempt to make an unsafe and unsignalized crossing, thus, increasing the probability of serious driver/pedestrian accidents. Traffic and pedestrian signals are proposed to be adjusted using demand-activated signals to better accommodate the pedestrian.

The primary goal of a mid-block crossing is to maximize visibility of pedestrians. This can be accomplished by incorporating traffic calming elements such as speed tables, curb extensions, and advance warning beacons. A speed table is proposed to be used at the mid-block crossing on King Street (located between 8th and 9th Street). Speed tables require raising the street level almost to the sidewalk height at crosswalk locations. These are effective at increasing the visibility of the pedestrian and crosswalk by slowing down traffic, increasing the height of the pedestrian in the crosswalk, and increasing eye contact between the pedestrian and driver.

Surface treatments within the pedestrian sidewalk areas play an important role in the overall streetscape design. The use of various materials and patterns help to enhance the visual quality of the environment and to unify the corridor. The treatments must be complimentary to the surrounding architecture and not visually obtrusive to it. Various concepts have been developed and may potentially be utilized in different areas throughout the corridor. The following display illustrates some of those concepts.

WILMINGTON STREETSCAPE PROJECTS
SIDEWALK MATERIAL AND PATTERN CONCEPTS



1

CONCEPT ONE NOTES:

- CROSSWALKS- 4"x8" PAVERS IN HERRINGBONE PATTERN
- ADA CURB RAMPS- WITH TWO COURSES OF 4"x8" PAVERS AT CURB
- TRANSIT SHELTER- WITH THREE COURSES OF PAVERS AROUND SHELTER EDGE
- SPLASHBLOCK AREA- 4"x8" PAVERS IN HERRINGBONE PATTERN WITH 4"x8" PAVER BAND ON BACK EDGE
- SIDEWALK CORNERS- CONCRETE WITH 2'x2' SCORING PATTERN
- SIDEWALKS- CONCRETE WITH 4'x4' SCORING PATTERN

2

CONCEPT TWO NOTES:

- CROSSWALKS- 4"x8" PAVERS IN HERRINGBONE PATTERN
- ADA CURB RAMPS- WITH TWO COURSES OF 4"x8" PAVERS AT CURB
- TRANSIT SHELTER- WITH THREE COURSES OF PAVERS AROUND SHELTER EDGE
- SPLASHBLOCK AREA- 8"x8" PAVERS WITH 4"x8" PAVER BAND FRONT AND BACK AND AROUND TREE PITS
- SIDEWALK CORNERS- 4"x8" PAVERS IN HERRINGBONE PATTERN WITH 4"x8" PAVER BAND AT EDGES
- SIDEWALKS- CONCRETE WITH 4'x4' SCORING PATTERN AND CONCRETE WITH 2'x2' SCORING PATTERN WITH 4"x8" PAVER BAND APPROACHING SIDEWALK CORNER PAVERS

3

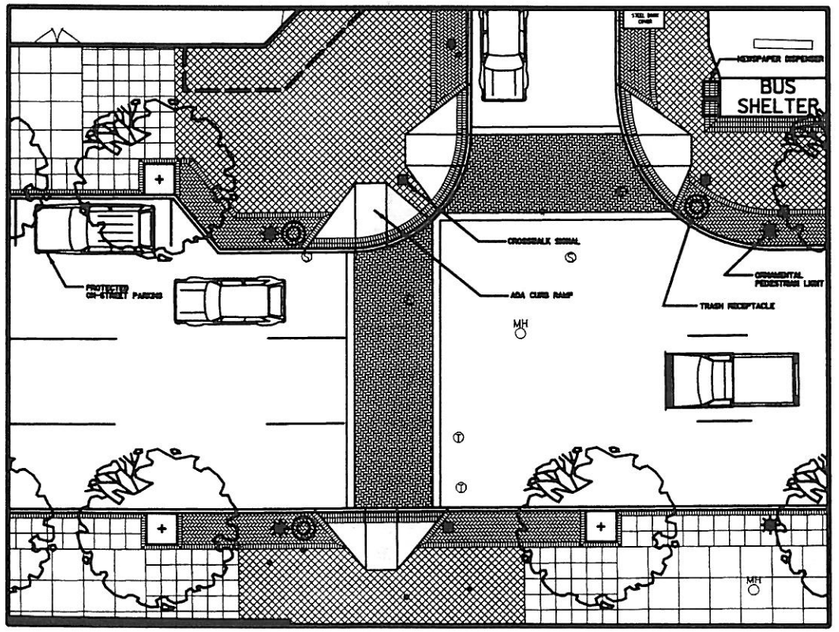
CONCEPT THREE NOTES:

- CROSSWALKS- 4"x8" PAVERS IN HERRINGBONE PATTERN
- ADA CURB RAMPS- WITH TWO COURSES OF 4"x8" PAVERS AT CURB
- TRANSIT SHELTER- WITH THREE COURSES OF PAVERS AROUND SHELTER EDGE
- SPLASHBLOCK AREA- CONCRETE WITH 2'x2' SCORING PATTERN WITH 4"x8" PAVER BAND AT CURB AND AROUND TREE PITS
- SIDEWALK CORNERS- 8"x8" PAVERS WITH 4"x8" PAVERS IN HERRINGBONE PATTERN AT SPLASHBLOCK AREAS
- SIDEWALKS- CONCRETE WITH 4'x4' SCORING PATTERN AND CONCRETE WITH 2'x2' SCORING PATTERN APPROACHING SIDEWALK CORNER PAVERS

4

CONCEPT FOUR NOTES:

- CROSSWALKS- 4"x8" PAVERS IN HERRINGBONE PATTERN
- ADA CURB RAMPS- WITH TWO COURSES OF 4"x8" PAVERS AT CURB
- TRANSIT SHELTER- WITH THREE COURSES OF PAVERS AROUND SHELTER EDGE
- SPLASHBLOCK AREA- 8"x8" PAVERS WITH 4"x8" PAVER BAND ON BACK EDGE
- SIDEWALK CORNERS- 8"x8" PAVERS WITH 8'x8' CONCRETE BAND GRID INLAY AND 4"x8" PAVER BAND AT EDGES
- SIDEWALKS- CONCRETE WITH 4'x4' SCORING PATTERN AND CONCRETE WITH 2'x2' SCORING PATTERN WITH 4"x8" PAVER BAND APPROACHING SIDEWALK CORNER PAVERS



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STREET TREES

Many blocks along both corridors do not provide sidewalk widths that are appropriate for street trees. Some of the wider existing sidewalks do not provide enough room to use street trees in conjunction with other elements and structures such as transit stop shelters. Additionally, the presence of underground utilities, vaults, and overhead utilities limit the installation of street trees. It is imperative that during final design, these factors are considered and that the plant material selected is compatible with these, and other, urban conditions. The recommended improvement plans include an initial analysis of where street trees are recommended.

ARCHITECTURE

Homsey Architects is currently conducting an architectural urban design analysis and impact study on areas with significant architectural value and where new structures such as transit shelters and other streetscape elements are proposed to be located. This study is to ensure that proposed structures and elements will coordinate well with the existing architecture of neighboring buildings at proposed transit shelter locations. As a result, Homsey Architects has provided design alternatives for custom transit shelters.

LIGHTING AND SIGNAGE

Street lights are integral to the safety and security of pedestrians and drivers, as well as, business owners during night time use of the downtown environment. Ornamental pedestrian scale light fixtures increase the visibility of pedestrians and storefronts and add to the aesthetics and ambiance of the downtown experience. They also aid in establishing the human scale of a "main street" environment. Ornamental pedestrian lighting is proposed as an option throughout both the King and Orange Street corridors. The existing signage along both corridors consists of the typical traffic signs. Most of the business signs, attached to the building facades, are oriented toward the driver and not the pedestrian. A tasteful combination of signage oriented toward the motorist at an appropriate scale for easy identification and smaller scaled signage oriented toward the sidewalk for the pedestrian would again, establish the pedestrian scale and help convey to the motorist that they are driving through a high pedestrian activity area. This is just one method of psychologically influencing the motorist to reduce vehicle speeds and increase pedestrian awareness.

SITE FURNISHINGS

The presence of elements such as light poles, signs, trash receptacles and benches have a major impact on the character and atmosphere of the central business district and set the stage for a transit/pedestrian oriented corridor or, conversely, a vehicle oriented corridor. Wherever feasible, it is proposed to relocate and consolidate conflicting vertical elements such as light poles, traffic signal poles, pedestrian signal poles, and utility poles. The recommended designs propose to relocate overhead utilities in some areas along Orange Street to increase room for streetscape elements as well as to reduce the visual clutter of the retail areas. Utility poles are proposed to be relocated to the back of the sidewalk between 5th and 6th Street. Overhead utilities are also proposed to be relocated underground between 7th and 10th Street.

Relocation and consolidation of other streetscape fixtures and pedestrian facilities at intersections are also proposed, to the maximum extent feasible. Consolidation of streetscape fixtures such as ornamental lights, parking meters and pay phones can drastically increase the aesthetic perception of a streetscape.

Also, strategically locating facilities or structures such as information kiosks can greatly reduce or eliminate the excessive amount of newspaper boxes, posters, fliers, mailboxes, trash receptacles, and pay phones. These vertical elements typically located at the curb generally do not create movement or visual difficulties for the pedestrian, but they do greatly reduce the visibility of the pedestrian to the driver. This is extremely important within the CBD due to the high volumes of pedestrian activity and where the potential for a driver/pedestrian conflict is much higher. These elements and facilities are proposed to be consolidated and located at building foundations wherever it is feasible and recommended according to the architectural study.

ROADWAY GEOMETRY

The number of travel lanes and turning lanes was established as part of the Downtown Circulation Study. These recommendations have been incorporated into this project. The recommended alternative for the two corridors proposes to regularize the roadway travel lane widths to 11' (3.4 m) by extending the curb face out into the existing roadway. The result is wider sidewalk widths that will eliminate unnecessary pavement within the travel and turning lanes. This will also work in conjunction with the traffic calming techniques being proposed throughout the corridors by providing narrower vehicle travel lanes.

PARKING

It was determined that the effort to create transit/pedestrian oriented corridors, may require the sacrifice of some on-street parking spaces. The greatest effort was made to preserve and expand the existing quantity of on-street parking within both corridors. Due to the nature of the improvements required to upgrade and provide additional transit facilities, the total amount of parking spaces was affected. As a result of the parking study conducted, it was determined that the recommended alternative for King Street will result in the reduction of (19) nineteen parking spaces for the entire corridor. The recommended alternative for Orange Street will result in the reduction of (4) four parking spaces for the entire corridor.

VI. ISSUES TO BE RESOLVED

Any project involving 13 blocks of a downtown area inherently involves a variety of complex issues. Throughout the course of the 20% design phase, these issues have been identified and every effort has been made to come to a resolution by the end of this phase. Some issues rely on the progress of other projects, developments, or studies, while others cannot be resolved until the project has moved into final design.

The following issues have surfaced during the data collection or recommendations phase of the 20% design study. They are listed below with actions taken to date and remaining items to be resolved.

- Underground Vaults

  Specific location and identification of underground vaults, basements, and coal chutes below the existing sidewalks along both the King and Orange Street Corridors. Presence of these features may require revisions to the design concepts during the final design phase.

  It is known that a number of the older businesses along both King and Orange Streets have basements that extend under the existing sidewalks. To our knowledge, there are no specific plans or records in the City archives that indicate the locations of these basements. During Final Design it will be necessary to determine the exact locations of these structures. This could be accomplished through the use of "high tech" underground void locating devices or by simply entering each establishment and viewing the basements.

- ADA Reviews and Approvals

  Final Plans require review and approval by the Access Wilmington Board. The facilities proposed at this time have been coordinated with the studies currently being completed, but have not been submitted to the board for approval.

- Custom Bus Shelters

  Current Designs for the custom bus shelters are at concept level only. Initial contacts have been made with the current property owners. Continued coordination will be required during final design, and installation with the property owners, DTC, DelDOT, and the City to ensure that the custom shelters will be implemented and maintained properly.

- ITS Strategies

  To date, no agreement has been reached on which specific strategies for Intelligent Transportation Systems technology should be included in this project. Continued coordination will be required with DelDOT, DTC, and the City to determine which strategies to incorporate at this time.

- Drainage Facilities

  Relocations and improvements to existing drainage facilities are recognized as important factors determining the ultimate location of the curb lines. This becomes of paramount interest in the location of bulb outs or curb extensions. The final design will require the quantification of

specific improvements or recommendations for relocations of drainage facilities.

- New Castle County Courthouse

The entire 200 block of King Street will be impacted by the construction of the New Castle County Courthouse. During final design, extensive coordination will be required with the courthouse design team to ensure that the goals of this project are realized in the streetscapes and amenities provided by the site designers of the courthouse.

- Other Wilmington Initiatives Projects

A wide variety of projects are currently in design in the Downtown Wilmington Area as part of the Wilmington Initiatives. Further Coordination will be required with all consultants working on projects adjacent to King Street and Orange Street. These projects include, but are not limited to:

MLK Boulevard Improvements	- RK&K
10th Street	- Orth-Rogers
Rodney Square/ Market Street	- Pennoni Associates
Downtown Signal Study	- Orth-Rogers
Wayfinding Study	- Mitchell Associates
Transit Connector Study	- Urban Engineers

VII. COMPOSITE OF THE RECOMMENDED IMPROVEMENTS

KING STREET ALTERNATIVE

The following reduced plan sheets illustrate the proposed design alternative for King Street. Highlights of the proposed changes are as follows:

- This alternative proposes bus shelters at all existing bus stops along King Street. This includes the stops at the King Street intersections of 2nd Street, 3rd Street, 6th Street, 9th Street and 10th Street as well as the mid-block stops located between 4th and 5th Streets and between 7th and 8th Streets.

  Homsey Architects has conducted architectural studies for placement of custom designed bus shelters at the 9th Street intersection and 10th Street intersection.

- Several types of traffic calming elements have been incorporated including curb extensions (bulb-outs), regularizing and narrowing of travel lanes, textured surfaces, streetscape elements, signage/signals, a speed table and raised/textured crosswalks.

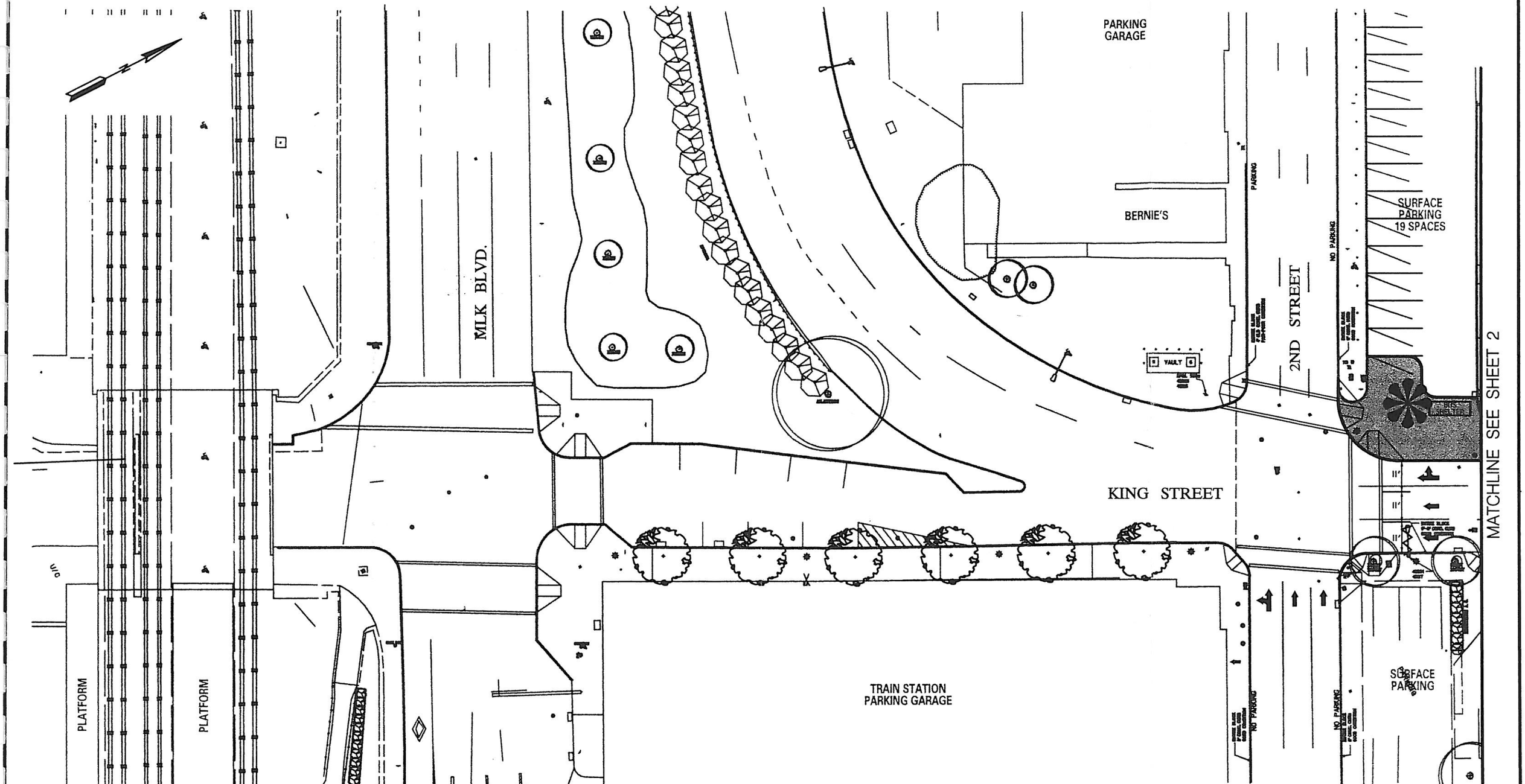
- Pedestrian access is improved through the implementation of widened sidewalk areas, curb extensions at the intersections, wider crosswalks, a mid-block crossing, improved pedestrian signalization, and ADA ramps at all street crossings.

- Street trees, ornamental pedestrian lighting, signing and site furnishings are proposed along the entire corridor.

- The existing parking pattern was maintained where possible. The number of on-street parking spaces decreases from an existing number of 109 to a proposed number of 104.

Sheet 1:

- The 2nd Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant, where applicable.
- The westside curbline of Orange Street from 2nd Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of King Street from Martin Luther King, Jr. Boulevard north to 2nd Street.
- The bus stop on the westside of King Street is proposed to be upgraded with a standard bus shelter.



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METRIC SCALE = 1 : 400

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LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 1

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Sheet 2:

- The 3rd Street intersection is upgraded with a pedestrian crosswalk and ADA ramps.
- The westside curbline of King Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 3rd Street intersection.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the westside of King Street adjacent to the Y.W.C.A.
- The bus stop on the westside of King Street is proposed to be upgraded with a standard bus shelter.

MATCHLINE SEE SHEET 1

SURFACE PARKING
(FOR SALE BY AMOTO
& ASSOC.)
16 SPACES
7 PARALLEL SPACES

211 NIGEL'S HOME COOKING
(COMING SOON)

KING SEAFOOD
MARKET

215 BILL'S MEAT
CENTER

COOPERS
FURNITURE

EMILY AND H.B. DuPONT
DAYCARE CENTER

HILDA A. DAVIS DOMESTIC
ABUSE OUTREACH CENTER

PARKING
2 SPACES

Y.W.C.A. ADMINISTRATION OFFICES

CENTER FOR HOME OWNERSHIP

CONFERENCE CENTER

WOMEN'S CENTER FOR
ECONOMIC OPTIONS

BOUTIQUE

LOADING ZONE

PARKING (UNMETERED)

3RD STREET

PARKING (UNMETERED)

SURFACE PARKING
20 SPACES

BUS
SHELTER

BROWN'S FURNITURE OUTLET
(VACANT)

KING DELI

MYSTIC PIZZA

LOADING ZONE

NO PARKING

KING STREET

SURFACE PARKING
PERMIT ONLY
117 SPACES

LOADING / SERVICE

F.C.C.

MATCHLINE SEE SHEET 3

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

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King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 2

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Sheet 3:

- The 4th Street and 5th Street intersections are upgraded with pedestrian crosswalks and ADA ramps. The 4th Street intersection has 2 ADA ramps in each quadrant with the exception of the northwest quadrant. The 5th Street intersection has 2 ADA ramps in each quadrant, where applicable.
- The eastside and westside curblines of King Street are shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 4th Street and 5th Street intersections.
- 5th Street traffic flow patterns are proposed to change from one way westbound to one way eastbound.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of King Street adjacent to the proposed Justice Center Building.
- The bus stop on the westside of King Street is proposed to be upgraded with a standard bus shelter.

MATCHLINE SEE SHEET 2

MATCHLINE SEE SHEET 4

PANDA CHINESE FOOD

317 FANTASY BRAIDS & D & H WEST INDIAN AMERICAN TAKE OUT

NO PARKING

4TH STREET

PARKING (METERED)

PROF. LUCKY NAILS

403 PRETTY LADY BEAUTY SALON

FIRST USA PARKING ONLY
68 SPACES

5TH STREET

PROPOSED

VACANT

509 VA

LOADING ZONE

PROPOSED

KING STREET

NATIONAL BANK

NO PARKING

PROPOSED JUSTICE CENTER BUILDING

SURFACE PARKING LOT

PLAZA

LAWN

PLAZ

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

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King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 3

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Sheet 4:

- The 6th Street and 7th Street intersections are upgraded with pedestrian crosswalks and ADA ramps. The intersections have 2 ADA ramps in each quadrant, where applicable.
- The eastside and westside curblines of King Street are shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 6th Street and 7th Street intersections.
- 6th Street traffic flow patterns are proposed to change from one way eastbound to one way westbound.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of King Street.
- The bus stop on the westside of King Street is proposed to be upgraded with a standard bus shelter.

MATCHLINE SEE SHEET 3

6TH STREET

7TH STREET

KING STREET

PROPOSED

PROPOSED

LOADING ZONE

LOADING ZONE

MATCHLINE SEE SHEET 5

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

King Street Transit and Pedestrian Enhancements

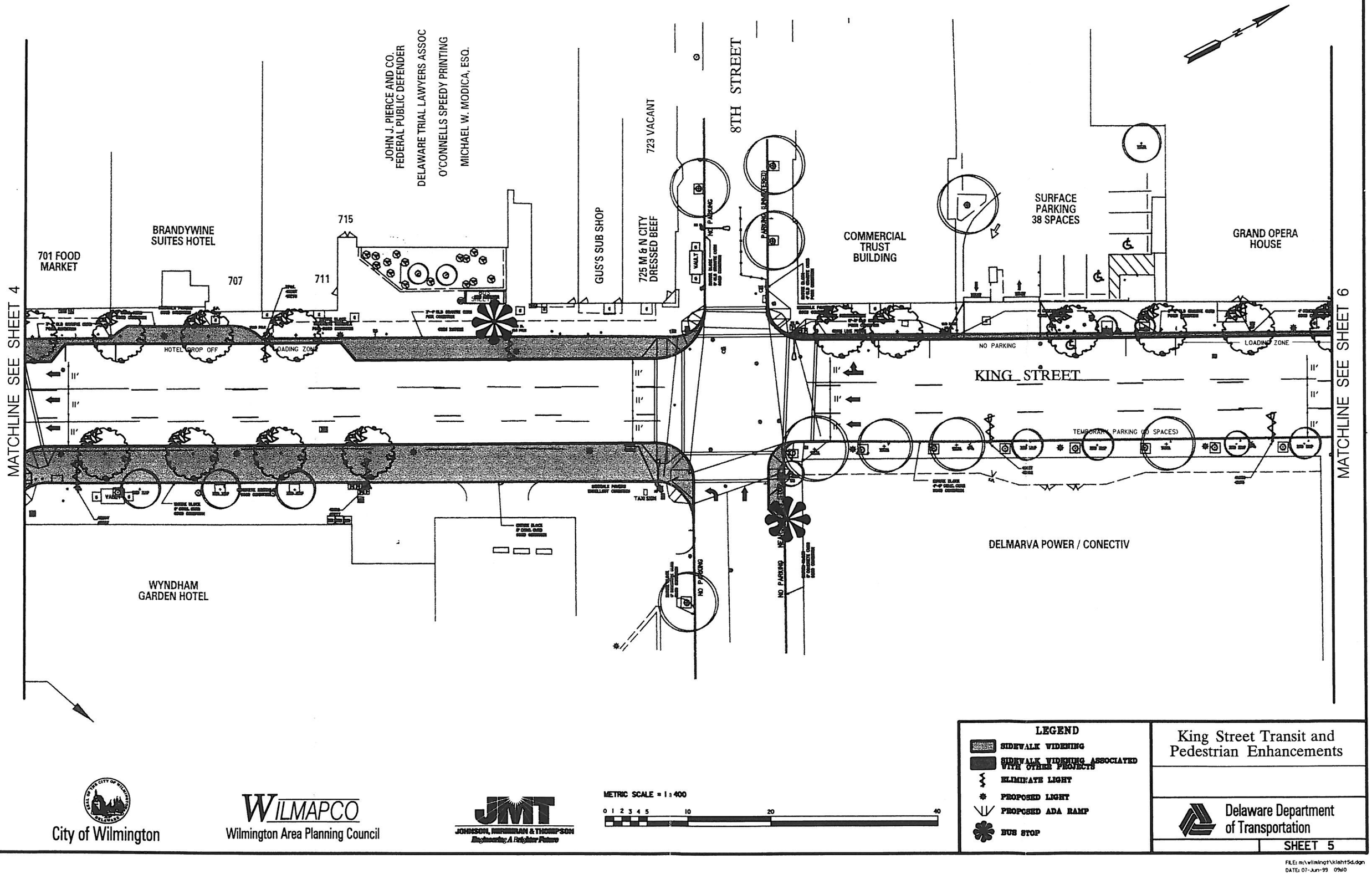
Delaware Department of Transportation

SHEET 4

FILE: m:\wilmington\kisht4d.dgn
DATE: 07-Jun-99 14:02

Sheet 5:

- The 8th Street intersection is upgraded with pedestrian crosswalks and ADA ramps. The intersection has 2 ADA ramps in each quadrant.
- The eastside and westside curblines of King Street are shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 8th Street intersection.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along both sides of King Street.
- The bus stop on the westside of King Street is proposed to be upgraded with a standard bus shelter.



City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 5

FILE: m:\wilmingt\klsht5d.dgn
DATE: 07-Jun-99 09h10

Sheet 6:

- The 9th Street intersection is upgraded with pedestrian crosswalks and ADA ramps. The intersection has 2 ADA ramps in each quadrant.
- The King Street mid-block crossing is located adjacent to Federal Express and the Boggs Federal Building. This will be treated with a raised crosswalk and accentuated with an overhead flashing signal.
- The westside curbline of King Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 9th Street intersection.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along both sides of King Street.
- The bus stop on the westside of King Street is proposed to be upgraded with a custom designed bus shelter. There currently is no shelter at this stop.

MATCHLINE SEE SHEET 5

824 FEDERAL EXPRESS

DELIVERY / LOADING SERVICE

PARKING 72 SPACES

VACANT

BUS SHELTER

WSFS BANK

FARSIDE BUS STOP

LOADING ZONE

9TH STREET

PARKING (METERED)

PARKING (METERED)

901 CORESTATES BANK

903 DELAWARE TRUST BUILDING

THE MEN'S CLUB BARBER SHOP

PARCELS, INC.

NO PARKING

NO PARKING

LOADING ZONE

KING STREET

TEMPORARY PARKING (8 SPACES)

LOADING ZONE

MATCHLINE SEE SHEET 7

RAISED CROSSWALK

844
BOGGS FEDERAL BUILDING

NO PARKING

FARSIDE BUS STOP

900 FAMILY COURT, STATE OF DELAWARE

VACANT LOT
(FORMERLY THE OLD YWCA BUILDING)

SERVICE AND PARKING
1 HANDICAPP SPACE
9 METERED SPACES

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

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Engineering A Brighter Future

King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 6

FILE: m:\wilming1\kisht6d.dgn
DATE: 07-Jun-99 09:12

Sheet 7:

- The 10th Street intersection is upgraded with pedestrian crosswalks and ADA ramps. Due to site constraints, the intersection has 1 ADA ramp in each quadrant with the exception of the northeast quadrant which has 2 ramps.
- The 11th Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant of the intersection.
- The westside curbline of King Street south of the 10th Street intersection is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- The eastside curbline of King Street north of the 10th Street intersection is shifted out further into the roadway adjacent to the Daniel L. Herrman Courthouse to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 10th Street and 11th Street intersections.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along both sides of King Street.
- The bus stop on the westside of King Street is proposed to be upgraded with a custom designed bus shelter. There currently is no shelter at this stop.

WILMINGTON
PUBLIC LIBRARY

10TH STREET

RODNEY
SQUARE

11TH STREET

KING STREET

BUS SHELTER

BUS ZONE

UTILITY
BLDG.

NO PARKING

PARKING (METERED)

LOADING ZONE

MATCHLINE SEE SHEET 6

MATCHLINE SEE SHEET 8

FIRST UNION
FINANCIAL CENTER
ONE RODNEY SQUARE

CITY HALL
ENTRANCE

COURTHOUSE
ENTRANCE

DANIEL L. HERRMAN
COURTHOUSE

PARKING (JUDICIAL STAFF ONLY)

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

City of Wilmington

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Engineering A Brighter Future

King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 7

FILE: m:\wilmingt\kishi7d.dgn
DATE: 07-Jun-99 13:57

Sheet 8:

- The 12th Street intersection is upgraded with pedestrian crosswalks and ADA ramps. The intersection has 2 ADA ramps in each quadrant with the exception of the southwest quadrant which has 1 ramp due to site constraints.
- The westside curbline of King Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 11th Street and 12th Street intersections.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of King Street north of the 12th Street intersection.

MATCHLINE SEE SHEET 7

MATCHLINE SEE SHEET 9

PARKING GARAGE

U.S. POST OFFICE

LOADING / SERVICE

LOADING ZONE

NO PARKING

12TH STREET

PARKING (METERED)

1201 HAYDEN, KANIA, O'NEILL LAW OFFICES

1203 EUGENE J. MAWER JR. ATTORNEY

2 PKG. SPACES

1205 RAMMUND, MOTTER, THOMPSON, HILLIS LAW OFFICES

1207 NEIL T. CROSSLAND LAW OFFICES

1209 SOL BALICK, C.P.A.

1211 VACANT

KING STREET

M.B.N.A. BRACE BRIDGE BUILDING

NO PARKING

VAULT

PARKING (METERED)

STATE OF DELAWARE AIR QUALITY MONITORING SYSTEM

1204 GEROLD E. DIXON, ESQ.

1206 ZEBLEY & ASSOC. INC.

1208 ZEBLEY & ASSOC. INC.

1210 EVANS, BOYER ATTORNEYS AT LAW

1212, 1214 LEONARD L. WILLIAMS, ESQ.

1216 KAPSALIS, WEILER, O'NEILL ATTORNEYS AT LAW

PARKING
APPROX. 45 - 50 SPACES

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 8

FILE: m:\wilmington\kisht8d.dgn
DATE: 07-Jun-99 09:15

Sheet 9:

- The westside curbline of King Street up to the 13th Street intersection is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of King Street up to the 13th Street intersection.
- The proposed improvements will tie into the existing conditions that have recently been installed along 13th Street as part of another project.

MATCHLINE SEE SHEET 8

1220 JOHN O'BRIEN

1222 ATT. TITLE SERVICES

1224 DALEY, ERISMAN & VAN OGTROP ATT. AT LAW

1228 JOSEPH M. KWIATKOWSKI LAW OFFICES

1230 ROSE 10 PERFECT NAILS

FRONT DOOR CAFE / FREEBERG & HOUGHTON ATTY. AT LAW (2ND FLOOR)

KING STREET

1213 JOHN A. FARANE LAW OFFICES

1215 HURLEY, FOLSOM LAW OFFICES

1217 HOLFIELD & BECKER ATTY AT LAW

1225 LEGAL ARTS BLDG.

VACANT

NO PARKING

13TH STREET

NO PARKING

PARKING (UNMETERED)

1300 LAW OFFICES

NO PARKING

PARKING GARAGE

SURFACE PARKING

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

King Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 9

FILE: m:\wilmingt\kisht9d.dgn
DATE: 07-Jun-99 09:17

ORANGE STREET ALTERNATIVE

The following reduced plan sheets illustrate the proposed design alternative for Orange Street. Highlights of the proposed changes are as follows:

- This alternative proposes bus shelter installation or upgrade at all existing bus stops along Orange Street. This includes the transit stops at the Orange Street intersections of 4th Street, 8th Street, and 9th Street as well as the mid-block stops located between 5th and 6th Streets and between 10th and 11th Streets.

  Homsey Architects has conducted architectural studies for placement of custom designed bus shelters at the 8th Street intersection, 9th Street intersection, and the shelter located on Orange Street between 10th and 11th Streets.

- Several types of traffic calming elements have been incorporated including curb extensions (bulb-outs), regularizing and narrowing of travel lanes, textured surfaces, streetscape elements, signage/signals, and raised/textured crosswalks.

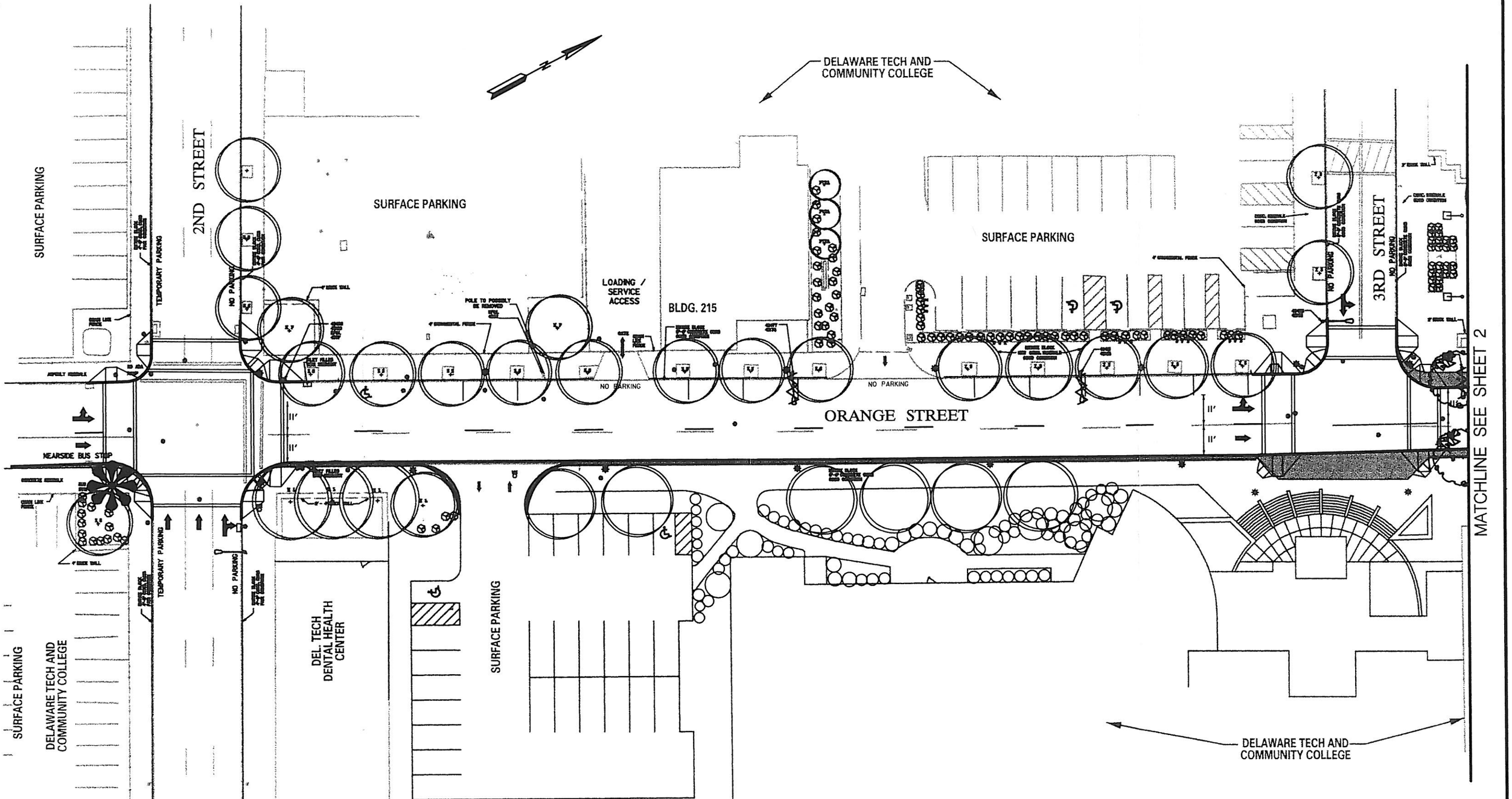
- Pedestrian access is improved through the implementation of widened sidewalk areas, curb extensions at the intersections, wider crosswalks, improved pedestrian signalization, and ADA ramps at all street crossings.

- Street trees, ornamental pedestrian lighting, signing and site furnishings are proposed along the entire corridor.

- The existing on-street parking pattern was maintained where possible. The number of on-street parking spaces increases from an existing number of 62 to a proposed number of 78.

Sheet 1:

- The 2nd Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant of the intersection.
- The eastside curbline of Orange Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- The westside curbline of Orange Street from 3rd Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- The drop off area in front of Delaware Tech Community College will be closed off with the new curbline.
- The 3rd Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant of the intersection.
- Existing On-street parking will not be impacted.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.



City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

Orange Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 1

FILE: m:\wilmington\orshtid.dgn
DATE: 07-Jun-99 13:51

Sheet 2:

- The 4th Street intersection is upgraded with pedestrian crosswalks and 1 ADA ramp in each quadrant of the intersection due to site constraints.
- The eastside and westside curblines of Orange Street are shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Curb extensions (bulb outs) are created at the 4th Street intersection.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along both sides of Orange Street adjacent to Delaware Tech Community College and along the eastside of Orange Street from 4th Street, north.

DELAWARE TECH AND COMMUNITY COLLEGE

4TH STREET

CUSTOMER PARKING 2 - 3 SPACES

SURFACE PARKING 65 SPACES

BLDG. 407

BLDG. 409

CITY CLEANING OPERATIONS OFFICE

GROSS LIGHTING CENTER

ORANGE STREET

PROPOSED

MATCHLINE SEE SHEET 1

MATCHLINE SEE SHEET 3

ELEVATED RIDGE

LOADING

NO PARKING

PARKING (METERED)

DELAWARE TECH AND COMMUNITY COLLEGE

SALVATION ARMY COMMUNITY CENTER

LOADING

EMERGENCY HOUSING RESIDENCE

SALVATION ARMY BOOTH SOCIAL SERVICE CENTER BLDG. 104

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
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JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

Orange Street Transit and Pedestrian Enhancements

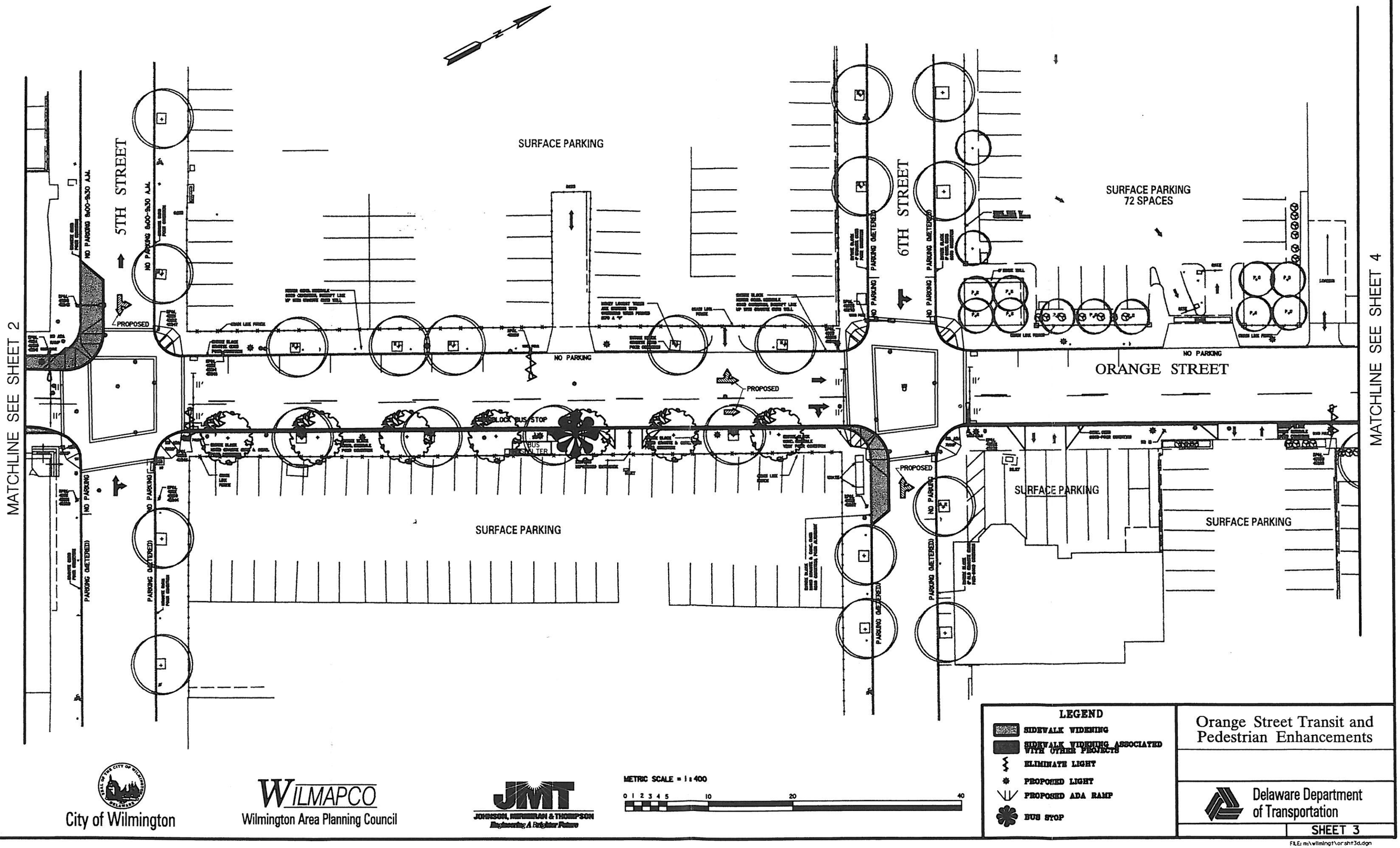
Delaware Department of Transportation

SHEET 2

FILE: m:\wilmington\orsht2d.dgn
DATE: 07-Jun-99 08:30

Sheet 3:

- The 5th Street intersection is upgraded with pedestrian crosswalks and 1 ADA ramp in each quadrant of the intersection due to site constraints, with the exception of the southwest quadrant which has 2 ADA ramps.
- The eastside curbline of Orange Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- A curb extension (bulb out) is created at the 5th Street intersection.
- 5th Street traffic flow patterns are proposed to change from one way westbound to one way eastbound.
- The bus stop on the eastside of Orange Street is proposed to be upgraded with a standard bus shelter. There currently is no shelter at this stop.
- 6th Street traffic flow patterns are proposed to change from one way eastbound to one way westbound.
- A curb extension (bulb out) is created at the 6th Street intersection.
- The 6th Street intersection is upgraded with pedestrian crosswalks and 1 ADA ramp in each quadrant of the intersection due to site constraints, with the exception of the southeast quadrant which has 2 ADA ramps.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- New street trees are proposed along the eastside of Orange Street from 5th Street to 6th Street.



LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
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Engineering A Brighter Future

Orange Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 3

FILE: m:\wilmingt\orsht3d.dgn
DATE: 07-Jun-99 08:41

Sheet 4:

- The 7th Street intersection is upgraded with pedestrian crosswalks and 1 ADA ramp in each quadrant of the intersection due to site constraints, with the exception of the southwest quadrant which has 2 ADA ramps.
- The eastside curbline of Orange Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- A curb extension (bulb out) is created at the 7th and 8th Street intersections.
- The bus stop on the eastside of Orange Street is proposed to be upgraded with a custom designed bus shelter that works in conjunction with the existing adjacent architecture. There currently is no shelter at this stop.
- The 8th Street intersection is upgraded with pedestrian crosswalks and 1 ADA ramp in each quadrant of the intersection due to site constraints.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of Orange Street from 7th Street to 8th Street.
- Parking lot visual screening in the form of a shrub border and decorative fence is proposed for the surface lot on the westside of Orange Street between 7th and 8th Streets.

MATCHLINE SEE SHEET 3

LINDEN BUILDING
WILMINGTON
PARKING AUTHORITY
BLDG. 625

PARKING
GARAGE

7TH STREET

NO PARKING

PARKING (METERED)

WALNUT
ROOM

BLDG. 701½
BUBBLE'S
BAR B Q

BLDG. 703A

BLDG. 705

PARKING
OFFICE

SURFACE PARKING
94 SPACES

LYONS MARKETING
COMMUNICATION
BLDG. 715

8TH STREET

PARSIDE BUS STOP

ORANGE STREET

BLDG. 109
SAMBOS
TAX SERVICE

SURFACE PARKING

EPISCOPAL CHURCH OF
ST. ANDREW AND MATTHEW

BUS
SHELTER

GLOBE
LITHO INC.
BLDG. 800

MATCHLINE SEE SHEET 5

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

Orange Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 4

FILE: m:\wilming1\orsht4d.dgn
DATE: 07-Jun-99 08:51

Sheet 5:

- The Girard Street intersection is upgraded with a pedestrian crosswalk and ADA ramps. A curb extension (bulb out) is created at this intersection.
- The 9th Street intersection is upgraded with pedestrian crosswalks and 1 ADA ramp in each quadrant of the intersection due to site constraints. A curb extension (bulb out) is created at this intersection.
- The eastside curbline of Orange Street is shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- The existing curbline from north of the 9th Street intersection is to remain due to site constraints, thus creating 10' (3.1 m) wide travel lanes.
- The bus stop on the eastside of Orange Street is proposed to be upgraded with a custom designed bus shelter that works in conjunction with the existing adjacent architecture. There currently is no shelter at this stop.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.

MATCHLINE SEE SHEET 4

SURFACE PARKING
215 SPACES

FARMERS MARKET
COVERED PARKING STRUCTURE

WILMINGTON
FARMERS MARKET

NO PARKING

GIRARD STREET

PARKING (METERED)

WOODSTOWNE
RESTAURANT & NITE CLUB

BLDG. 843
SIMPLY HAIR

BLDG. 200

BLDG. 200
NINTH STREET PLAZA BUILDING
VACANT

9TH STREET

NO PARKING

BLDG. 201
SOVERIGN BANK

TEMPORARY PARKING
(4 SPACES)

11′ ORANGE STREET 15′

11′
11′
11′
11′
11′

10′
10′
10′

NEARSIDE BUS STOP

SHELTER

LOADING

VACANT

2 PARKING SPACES

VACANT

DUNKIN
DONUTS

LOADING

VACANT
OLD HAPPY HABITS
RESCUE HOUSE

PARKING

MID-TOWN PARKING GARAGE

MID-TOWN PARKING GARAGE

MID-TOWN PARKING CENTER

FARSIDE BUS STOP
PARKING

MATCHLINE SEE SHEET 6

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

Orange Street Transit and Pedestrian Enhancements

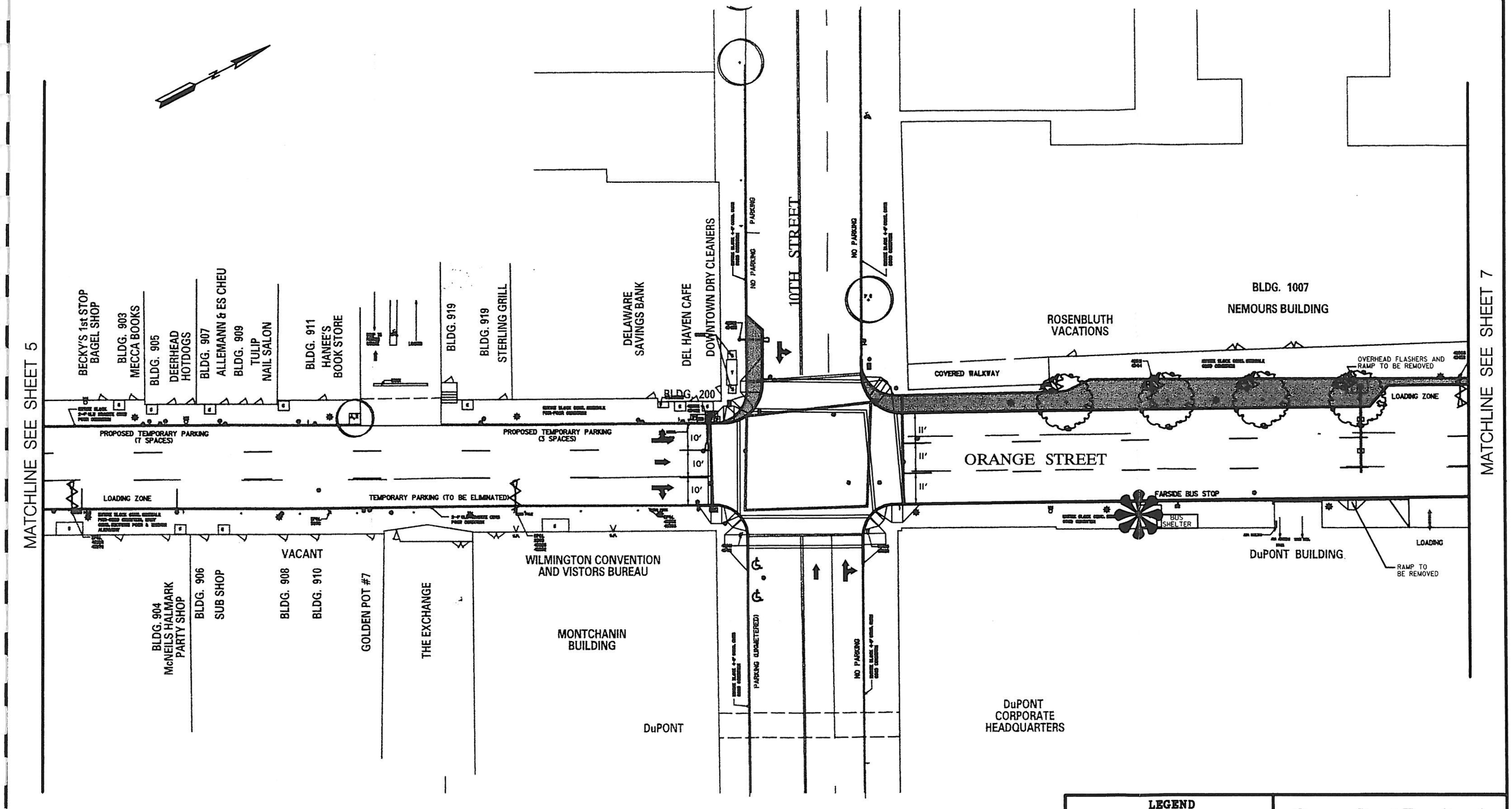
Delaware Department of Transportation

SHEET 5

FILE: m:\wilmingt\orsht5d.dgn
DATE: 07-Jun-99 08:57

Sheet 6:

- The 10th Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant of the intersection with the exception of the northwest quadrant which has only 1 ramp due to site constraints. A curb extension (bulb out) is created at this intersection.
- The eastside and westside curblines of Orange Street north of 10th Street are shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- The existing curbline from south of the 10th Street intersection is to remain due to site constraints, thus creating 10' (3.1 m) wide travel lanes.
- The bus stop on the eastside of Orange Street is proposed to be upgraded with a custom designed bus shelter that works in conjunction with the existing adjacent architecture. There currently is no shelter at this stop.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the westside of Orange Street north of 10th Street.
- The existing signalized mid-block crossing north of 10th Street will be removed.



City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

METRIC SCALE = 1:400
0 1 2 3 4 5 10 20 40

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

Orange Street Transit and Pedestrian Enhancements

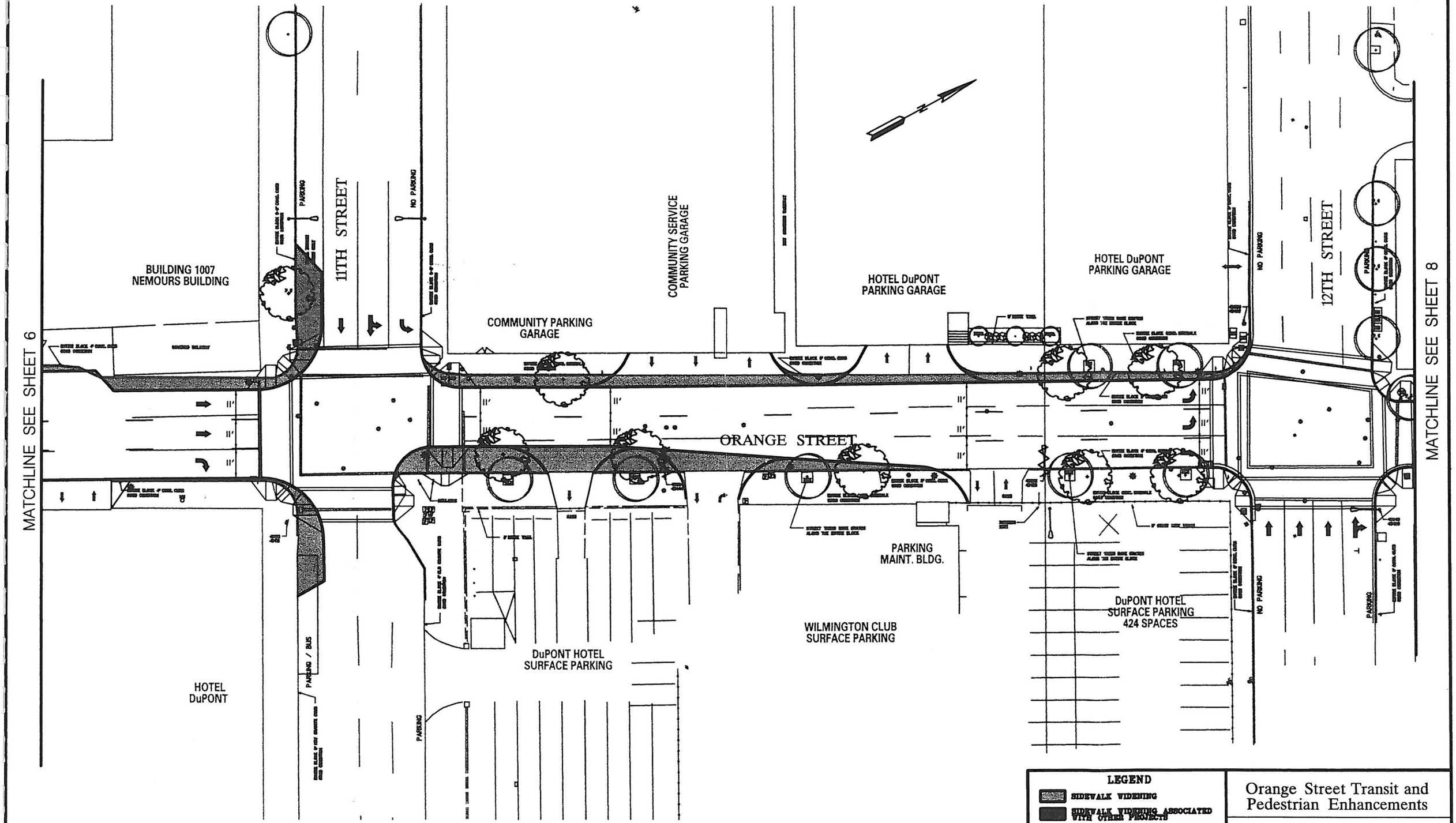
Delaware Department of Transportation

SHEET 6

FILE: m:\wilmington\orsht6d.dgn
DATE: 07-Jun-99 09:05

Sheet 7:

- The 11th Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant of the intersection. Curb extensions (bulb outs) are created at this intersection.
- The eastside and westside curblines of Orange Street are shifted out further into the roadway to create 11' (3.4 m) wide travel lanes and to create better roadway alignment through the adjacent intersections.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along both sides of Orange Street.
- The 12th Street intersection is upgraded with pedestrian crosswalks and 2 ADA ramps in each quadrant of the intersection.



LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1:400

0 1 2 3 4 5 10 20 40

Orange Street Transit and Pedestrian Enhancements

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

Delaware Department of Transportation

SHEET 7

FILE: m:\wilmington\orsht7d.dgn
DATE: 07-Jun-99 09:40

Sheet 8:

- The eastside and westside curblines of Orange Street remain at the existing horizontal alignment.
- Existing overhead roadway lighting will be eliminated and pedestrian scale ornamental light poles are proposed along both sides of the street.
- Street trees are proposed along the eastside of Orange Street.

MATCHLINE SEE SHEET 7

BLDG. 1201
ONE COMMERCE CENTER
DELAWARE STATE
CHAMBER OF COMMERCE

BLDG. 1203

BLDG. 1205
COLONIAL PARKING

BLDG. 1209
CT CORPORATION SYSTEMS

BLDG. 1209
CT CORPORATION SYSTEMS

TEMPORARY PARKING
(11 SPACES)

PARKING

13TH STREET

PEREGOY'S
NURSERY & KINDERGARTEN

BLDG. 1301

BLDG. 1303

ORANGE STREET

COLONIAL PARKING GARAGE
495 SPACES

NO PARKING

HERCULES PLAZA

LEGEND

- SIDEWALK WIDENING
- SIDEWALK WIDENING ASSOCIATED WITH OTHER PROJECTS
- ELIMINATE LIGHT
- PROPOSED LIGHT
- PROPOSED ADA RAMP
- BUS STOP

METRIC SCALE = 1 : 400

0 1 2 3 4 5 10 20 40

City of Wilmington

WILMAPCO
Wilmington Area Planning Council

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future

Orange Street Transit and Pedestrian Enhancements

Delaware Department of Transportation

SHEET 8

FILE: m:\wilmingt\orsht8d.dgn
DATE: 07-Jun-99 09:45

Appendix 1

Specifications
Passenger Waiting Shelters
Delaware Transit Corporation

Purpose

Provide passenger waiting shelters as specified below. Contract will be for the purchase of up to sixty (60) shelters, ordered in groups of ten (10) or more. Up to five (5) shelter sizes may be needed.

General Specifications - All shelters

- Shelter frame shall be aluminum extruded tubing, 3/16" minimum thickness (6063-T5 or T6).
- Finish will be either anodized or powder coat, bronze, and will be applied at factory. Provide bronze touch-up paint compatible with finish (provide 4 ounces per shelter).
- Shelter design must allow for at least two (2) concrete anchors for each vertical support (shelter types 1, 2, 3, & 4). Whenever possible, the anchors shall be positioned in such a way that they do not cause a potential tripping hazard. Cantilevered shelters (shelter type 5) must have mounting sleeves that will be installed into new concrete footers. The shelter supports will then be inserted into the sleeves and secured.
- Glazing shall be 1/4" clear tempered safety glass, and shall be mounted in formed "V" shaped gasket (½" minimum) around the entire perimeter. Installation shall be water-tight and tamper-proof. Some shelters may be ordered with 1/4" clear poly-carbon glazing (Lexan or approved equal).
- Roof shall be standing seam aluminum hip roof, with front dormer. The roof must be designed so that there are no cross-supports on the interior of the roof, and roof must be shipped completely assembled. The dormer will have the same height as the peak of the roof, and the bottom of the dormer shall be one and one-half times as long as the height. Roof and dormer shall be water-tight, and shall have a continuous aluminum fascia around the perimeter to collect and channel water to the rear of the shelter. If the gutter is not sufficient to prevent ice and snow from sliding off the roof, ice breakers shall be installed between each seam, 6" to 10" from the bottom edge of the roof. All roof components, interior and exterior, shall be bronze.
- All shelters must have a structural header across the front opening to support the roof. Header will be one-piece, will be attached to the side walls, and must be engineered to support the weight of the roof across the span.
- Each shelter will include one (1) schedule display case. Case shall consist of a hinged frame attached to the shelter frame one on side, and securing to the frame on the other (the case will have the same width as one glass pane). The case will have a plexi-glass front, and will measure at least 27" by 27". Each case must have at least one tamper-proof screw or locking device. One screw-driver or two keys must be provided for every five (5) shelters ordered. The location of the case for each shelter type is listed below. If the cases are installed in the panel before shipping, the top of the case shall be no higher than 6' from the floor of the shelter. DTC may choose to purchase additional display cases.

- All connecting hardware (rivets, screws, bolts, etc.) shall be stainless steel and shall be rated 1,650 lbs. shear, 1,375 lbs. tensile (or greater).
- All shelter connections and fasteners must be hidden where ever possible, and covers shall be supplied for connections at the base of each vertical support. Fasteners that cannot be hidden shall have bronze finish. Exposed or easily accessible fasteners must be vandal resistant type.
- Benches shall be 100% recycled plastic composite, brown to match shelter finish, and must be 4' shorter than the interior length of the shelter. Bench seat shall be a minimum of 10" wide, and the backrest a minimum of 8" wide. Bench seats shall be placed at a height no greater than 20" (to the surface of the bench), and shall be adjacent to the right side panel, leaving a minimum 4' clear space on the left side of the shelter.
- All assembly and anchoring hardware shall be included, and shall be shipped in individual packages. Each package shall contain all items necessary to install one shelter, and each package shall be marked with the shelter type. One (1) complete hardware package must be shipped for each shelter ordered.
- Provide detailed installation and care manuals for each shelter type. Care manuals must include instructions and chemical/solvent lists for removing dirt, stains, and graffiti from the shelter and glass.

Shelter Type #1 - 15'w by 5'd

- Shelter size shall be approximately 15'w x 5'd x 8'h.
- Rear Panel: 15' w x 8'h, one (1) per shelter, shipped in three (3) 5'w x 8'h sections.
- Side Panels: 5'w x 8'h, two (2) per shelter.
- Roof: 15'w x 5'd, one (1) per shelter.
- Bench: 11' recycled plastic with backrest.
- Schedule Display Case: 27"w x 27"h (or larger), located in the left rear panel.

Shelter Type #2 - 15'w by 30"d shelter, with a 15'w by 5'd roof

- Shelter size shall be approximately 15'w x 30"d x 8'h, with a 5' cantilevered roof (flush with the back wall, cantilevered out over the front of the shelter).
- Rear Panel: 15' w x 8'h, one (1) per shelter, shipped in three (3) 5'w x 8'h sections.
- Side Panels: 30"w x 8'h, two (2) per shelter.
- Roof: 15'w x 5'd, one (1) per shelter.
- Bench: 11' recycled plastic with backrest.
- Schedule Display Case: 27"w x 27"h (or larger), located in the left rear panel.

Shelter Type #3 - 10'w by 5'd

- Shelter size shall be approximately 10'w x 5'd x 8'h.
- Rear Panel: 10' w x 8'h, one (1) per shelter, shipped in two (2) 5'w x 8'h sections.
- Side Panels: 5'w x 8'h, two (2) per shelter.
- Roof: 10'w x 5'd, one (1) per shelter.
- Bench: 6' recycled plastic with backrest.
- Schedule Display Case: 27"w x 27"h (or larger), located in the left rear panel.

Shelter Type #4 - 10'w by 30"d shelter, with a 10'w by 5'd roof

- Shelter size shall be approximately 10'w x 30"d x 8'h, with a 5' cantilevered roof (flush with the back wall, cantilevered out over the front of the shelter).
- Rear Panel: 10' w x 8'h, one (1) per shelter, shipped in two (2) 5'w x 8'h sections.
- Side Panels: 30"w x 8'h, two (2) per shelter.
- Roof: 10'w x 5'd, one (1) per shelter.
- Bench: 6' recycled plastic with backrest.
- Schedule Display Case: 27"w x 27"h (or larger), located in the left rear panel.

Shelter Type #5 - 10'w by 5'd - Cantilevered

- Shelter is to consist of rear wall, with a cantilevered roof. Design must provide for clear space in front of the rear wall (no obstructions).
- Shelter size shall be approximately 10'w x 5'd x 8'h.
- Rear Panel: 10' w x 8'h, one (1) per shelter, shipped in two (2) 5'w x 8'h sections.
- Roof: 10'w x 5'd, one (1) per shelter.
- Sleeves to be installed into the concrete pad to secure the shelter must be provided, along with installation instructions and footing specifications.
- Schedule Display Case: 27"w x 27"h (or larger), located in the left rear panel.

Quantities

DTC will place orders in groups of 10 or more shelters, with any combination of the above types.

Shipping

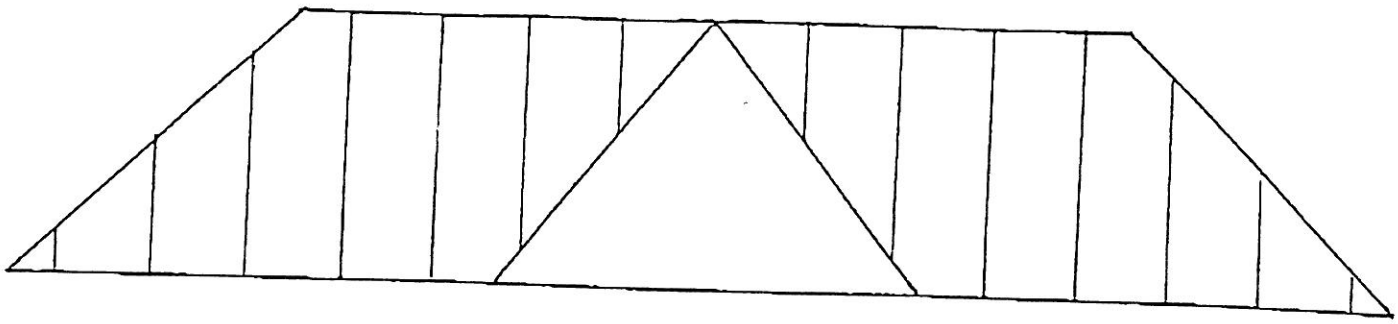
Manufacturer shall provide delivery of shelters to location specified by DTC. Carrier must provide equipment and personnel to unload the shelters at the DTC storage location. Costs for shipping and unloading shall be included in the shelter price. All panels must have identification showing shelter size and panel type (Type 2 - Left side, Type 1 - Right rear, etc.)

Terms

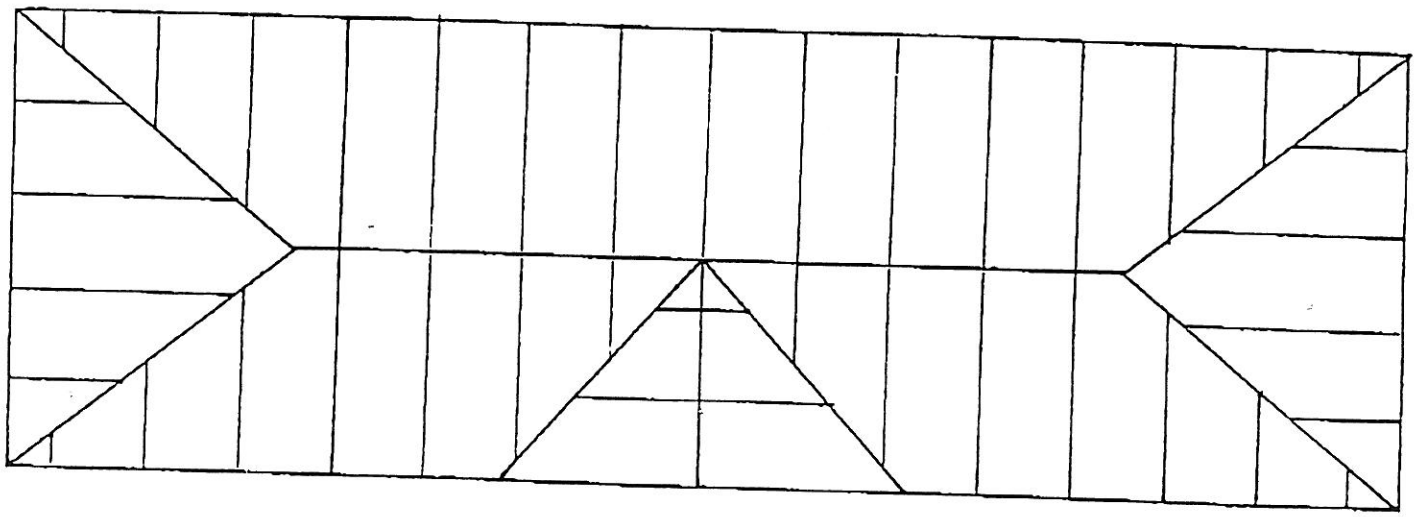
Contract will be for three (3) years, or for the purchase of up to sixty (60) shelters, whichever occurs first. Contract will begin on date the Notice to Proceed is issued by DTC. For Bonding purposes, the total contract cost shall be calculated on the following quantities:

Type One Shelters - (30)
Type Three Shelters - (30)
(These quantities are for bonding calculations only, and may not reflect the actual order.)

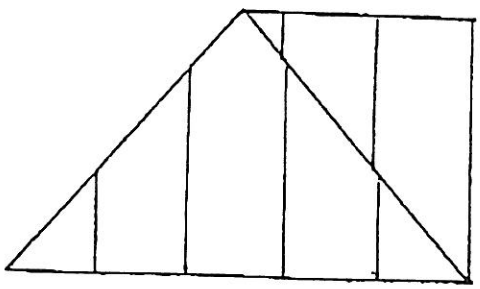
ALUMINUM STANDING SEAM ROOF WITH FRONT DORMER



FRONT VIEW
N.T.S.



PLAN VIEW
N.T.S.



SIDE VIEW
N.T.S

Appendix 2

COST ESTIMATES

The proposed base transit corridor improvements to Orange Street are estimated to be **$1.44 million.** Additional improvements to the Orange Street corridor include:

–	Site Furnishings	$0.2 million
–	Lighting	$0.59 million
–	Crosswalks	$0.34 million
–	Roadway Upgrades	$0.25 million

The proposed base transit corridor improvements to King Street are estimated to be **$1.65 million**. Additional improvements to the King Street corridor include:

–	Site Furnishings	$0.15 million
–	Lighting	$0.53 million
–	Crosswalks	$0.34 million
–	Roadway Upgrades	$0.35 million

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King St. base cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$776,100
1 Grading		
a.	Excavation	$0
b.	Borrow	$0
2 Drainage		$0
3 Traffic Lane Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$0
6 Miscellaneous		
a.	Curb/Gutter	$83,800
b.	Sidewalk	$564,500
c.	Fencing	$0
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$100,000
Other (Specify)		
7 Milling, 2"		$0
8 Removal of Conc. Curb		$9,100
9 Removal of Granite Curb		$18,700
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King St. base cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$190,100	2 Signals	$0
1 Beautification	$190,100	3 Detour Signing	$0
2 Mitigation Related	$0		
		Other (Specify)	
F. MAINT. OF TRAFFIC	$225,000	4 Overhead Beacon	$0
		5	$0
G. PRJ. TRAFFIC ITEMS	$12,300	Bureau Of Traffic Estimator:	
1 Signing Structures			
a. Overhead Bridges	$0		
b. Cantilever Supports	$0	**I. WETLAND MITIGATION**	$0
2 Roadway Lighting	$0	**J. UTILITY RELOCATION**	$0
		1 Water	$0
3 Pavement Markings	$12,300	2 Sanitary Sewer	$0
		3 Electric	$0
Other (Specify)		4 Telephone	$0
4	$0	5 Gas	$0
5	$0	6 CATV	$0
6	$0	7 Reimburseables	$0
H. BUR. OF TRAFFIC ITEMS	$800	Other (Specify)	
1 Signing	$800	8	$0
(traffic items continued above)		9	$0
		Utilities Estimator:	

K. SUBTOTAL (A thru J)	$1,204,300
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$60,215
M. INITIAL EXPENSE (normally 5% of K)	$60,215
N. CONSTRUCTION COSTS (K thru M)	$1,324,730
O. CONSTR. ENGINEERING (normally 15% of N)	$198,710
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$132,473
Contingency Used (%) ⟶ **10%**	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$1,656,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King Street - Street Furniture Cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$0
1 Grading		
a. Excavation	$0	
b. Borrow	$0	
2 Drainage	$0	
3 Traffic Lane Paving		
a. Surface	$0	
b. Base	$0	
c. Subbase	$0	
4 Shoulder Paving		
a. Surface	$0	
b. Base	$0	
c. Subbase	$0	
5 Erosion/Sediment Control	$0	
6 Miscellaneous		
a. Curb/Gutter	$0	
b. Sidewalk	$0	
c. Fencing	$0	
d. C.P.M. Schedule	$0	
e. Clearing/Grubbing	$0	
Other (Specify)		
7 Milling, 2"	$0	
8 Removal of Conc. Curb	$0	
9 Removal of Granite Curb	$0	
10		
B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a. Type		
b. Size		
c. $/S.F.		
2 Old Structure Removal		$0
a. Type		
b. Size		
c. $/C.Y.		
3 Retaining Wall		$0
a. Type		
b. Size		
c. $/C.Y.		
4 Box Culvert		$0
a. Type		
b. Size		
c. $/S.F.		
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King Street - Street Furniture Cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$106,000
1 Beautification (Street Furn.)	$106,000
2 Mitigation Related	$0
F. MAINT. OF TRAFFIC	$0
G. PRJ. TRAFFIC ITEMS	$0
1 Signing Structures	
a. Overhead Bridges	$0
b. Cantilever Supports	$0
2 Roadway Lighting	$0
3 Pavement Markings	$0
Other (Specify)	
4	$0
5	$0
6	$0
H. BUR. OF TRAFFIC ITEMS	$0
1 Signing	$0
(traffic items continued above)	

2 Signals	$0
3 Detour Signing	$0
Other (Specify)	
4 Overhead Beacon	$0
5	$0
Bureau Of Traffic Estimator:	
I. WETLAND MITIGATION	$0
J. UTILITY RELOCATION	$0
1 Water	$0
2 Sanitary Sewer	$0
3 Electric	$0
4 Telephone	$0
5 Gas	$0
6 CATV	$0
7 Reimburseables	$0
Other (Specify)	
8	$0
9	$0
Utilities Estimator:	

K. SUBTOTAL (A thru J)	$106,000
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$5,300
M. INITIAL EXPENSE (normally 5% of K)	$5,300
N. CONSTRUCTION COSTS (K thru M)	$116,600
O. CONSTR. ENGINEERING (normally 15% of N)	$17,490
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$11,660
Contingency Used (%) ⟶ 10%	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$146,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King St. pedestrian lighting cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$0
1 Grading		
a. Excavation	$0	
b. Borrow	$0	
2 Drainage	$0	
3 Traffic Lane Paving		
a. Surface	$0	
b. Base	$0	
c. Subbase	$0	
4 Shoulder Paving		
a. Surface	$0	
b. Base	$0	
c. Subbase	$0	
5 Erosion/Sediment Control	$0	
6 Miscellaneous		
a. Curb/Gutter	$0	
b. Sidewalk	$0	
c. Fencing	$0	
d. C.P.M. Schedule	$0	
e. Clearing/Grubbing	$0	
Other (Specify)		
7 Milling, 2"	$0	
8 Removal of Conc. Curb	$0	
9 Removal of Granite Curb	$0	
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a. Type		
b. Size		
c. $/S.F.		
2 Old Structure Removal		$0
a. Type		
b. Size		
c. $/C.Y.		
3 Retaining Wall		$0
a. Type		
b. Size		
c. $/C.Y.		
4 Box Culvert		$0
a. Type		
b. Size		
c. $/S.F.		
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King St. pedestrian lighting cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$0	2 Signals	$0
1 Beautification	$0	3 Detour Signing	$0
2 Mitigation Related	$0		
		Other (Specify)	
F. MAINT. OF TRAFFIC	$0	4 Overhead Beacon	$0
		5	$0
G. PRJ. TRAFFIC ITEMS	$385,500	Bureau Of Traffic Estimator:	
1 Signing Structures			
a. Overhead Bridges	$0		
b. Cantilever Supports	$0	**I. WETLAND MITIGATION**	$0
2 Roadway Lighting	$385,500	**J. UTILITY RELOCATION**	$0
		1 Water	$0
3 Pavement Markings	$0	2 Sanitary Sewer	$0
		3 Electric	$0
Other (Specify)		4 Telephone	$0
4	$0	5 Gas	$0
5	$0	6 CATV	$0
6	$0	7 Reimburseables	$0
H. BUR. OF TRAFFIC ITEMS	$0	Other (Specify)	
1 Signing	$0	8	$0
(traffic items continued above)		9	$0
		Utilities Estimator:	

K. SUBTOTAL (A thru J)	$385,500
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$19,275
M. INITIAL EXPENSE (normally 5% of K)	$19,275
N. CONSTRUCTION COSTS (K thru M)	$424,050
O. CONSTR. ENGINEERING (normally 15% of N)	$63,608
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$42,405
Contingency Used (%) ⟶ **10%**	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$530,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King Street Ped Crossing Cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-A of V

PART IV - CONSTRUCTION

A.	**ROADWAY/APPROACH CONSTRUCTION**	$0	**B.**	**STRUCTURE CONSTRUCTION**	$0
1	Grading		1	New Bridge	$0
a.	Excavation	$0	a.	Type	
b.	Borrow	$0	b.	Size	
			c.	$/S.F.	
2	Drainage	$0			
3	Traffic Lane Paving		2	Old Structure Removal	$0
a.	Surface	$0	a.	Type	
b.	Base	$0	b.	Size	
c.	Subbase	$0	c.	$/C.Y.	
4	Shoulder Paving		3	Retaining Wall	$0
a.	Surface	$0	a.	Type	
b.	Base	$0	b.	Size	
c.	Subbase	$0	c.	$/C.Y.	
5	Erosion/Sediment Control	$0	4	Box Culvert	$0
			a.	Type	
6	Miscellaneous		b.	Size	
a.	Curb/Gutter	$0	c.	$/S.F.	
b.	Sidewalk	$0			
c.	Fencing	$0			
d.	C.P.M. Schedule	$0	**C.**	**PARK AND RIDE LOTS**	$0
e.	Clearing/Grubbing	$0			
			D.	**BERMS**	$0
	Other (Specify)		1	Noise Mitigation	$0
7	Milling, 2"	$0	2	Visual Mitigation	$0
8	Removal of Conc. Curb	$0			
9	Removal of Granite Curb	$0			
10					

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King Street Ped Crossing Cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E.	**LANDSCAPING**	$245,200	2	Signals	$0
1	Beautification (Ped. X-ing)	$245,200	3	Detour Signing	$0
2	Mitigation Related	$0			
				Other (Specify)	
F.	**MAINT. OF TRAFFIC**	$0	4	Overhead Beacon	$0
			5		$0
G.	**PRJ. TRAFFIC ITEMS**	$0		Bureau Of Traffic Estimator:	
1	Signing Structures				
a.	Overhead Bridges	$0			
b.	Cantilever Supports	$0	**I.**	**WETLAND MITIGATION**	$0
2	Roadway Lighting	$0	**J.**	**UTILITY RELOCATION**	$0
			1	Water	$0
3	Pavement Markings	$0	2	Sanitary Sewer	$0
			3	Electric	$0
	Other (Specify)		4	Telephone	$0
4		$0	5	Gas	$0
5		$0	6	CATV	$0
6		$0	7	Reimburseables	$0
H.	**BUR. OF TRAFFIC ITEMS**	$0		Other (Specify)	
1	Signing	$0	8		$0
	(traffic items continued above)		9		$0
				Utilities Estimator:	

K.	**SUBTOTAL** (A thru J)	$245,200
L.	**CONTRACTOR'S CONST. ENG.** (normally 5% of K)	$12,260
M.	**INITIAL EXPENSE** (normally 5% of K)	$12,260
N.	**CONSTRUCTION COSTS** (K thru M)	$269,720
O.	**CONSTR. ENGINEERING** (normally 15% of N)	$40,458
P.	**CONTINGENCY COSTS** - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$26,972
	Contingency Used (%) ⟶ 10%	
Q.	**TOTAL CONSTRUCTION COSTS** (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$337,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King St. roadway upgrade cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$254,700
1 Grading		
a.	Excavation	$14,600
b.	Borrow	$0
2 Drainage		$75,000
3 Traffic Lane Paving		
a.	Surface	$57,400
b.	Base	$30,300
c.	Subbase	$5,400
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$25,000
6 Miscellaneous		
a.	Curb/Gutter	$0
b.	Sidewalk	$0
c.	Fencing	$0
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$0
Other (Specify)		
7 Milling, 2"		$47,000
8 Removal of Conc. Curb		$0
9 Removal of Granite Curb		$0
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	King St. roadway upgrade cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$0	2 Signals	$0
1 Beautification	$0	3 Detour Signing	$0
2 Mitigation Related	$0		
		Other (Specify)	
F. MAINT. OF TRAFFIC	$0	4 Overhead Beacon	$0
		5	$0
G. PRJ. TRAFFIC ITEMS	$0	Bureau Of Traffic Estimator:	
1 Signing Structures			
a. Overhead Bridges	$0		
b. Cantilever Supports	$0	**I. WETLAND MITIGATION**	$0
2 Roadway Lighting	$0	**J. UTILITY RELOCATION**	$0
		1 Water	$0
3 Pavement Markings	$0	2 Sanitary Sewer	$0
		3 Electric	$0
Other (Specify)		4 Telephone	$0
4	$0	5 Gas	$0
5	$0	6 CATV	$0
6	$0	7 Reimburseables	$0
H. BUR. OF TRAFFIC ITEMS	$0	Other (Specify)	
1 Signing	$0	8	$0
(traffic items continued above)		9	$0
		Utilities Estimator:	

K. SUBTOTAL (A thru J)	$254,700
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$12,735
M. INITIAL EXPENSE (normally 5% of K)	$12,735
N. CONSTRUCTION COSTS (K thru M)	$280,170
O. CONSTR. ENGINEERING (normally 15% of N)	$42,026
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$28,017
Contingency Used (%) → 10%	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$350,000

King Street Cost Estimate Quantities

Landscape quantities (along northside of King Street)

Block	Street Trees (EA)	Shrubs (EA)	Lightpoles (EA)	Sidewalk (SF)	Bus Shelter Type (EA)		Electrical Conduit (LF)	Decorative Fencing (LF)	Trash Receptacles (EA)
2nd-3rd	3	8	6	8581.31	1	std	426.76	87.31	1
3rd-4th	0	20	3	4908.88	1	std	255.87	85.54	1
4th-5th	0	0	4	5670.31	2	std	306.06	157.57	1
5th-6th	0	0	4	5873.21	0		312.62	55.83	1
6th-7th	0	0	4	5362.36	1	std	303.43	75.61	1
7th-8th	4	0	4	6234.13	1	std	314.45	0	1
8th-9th	8	0	7	7888.54	1	cust	518.67	0	1
9th-10th	6	0	5	5200.15	1	cust	369.56	0	1
10th-11th	0	0	0	0	0		367.26	0	0
11th-12th	0	0	5	9457.05	0		366.77	0	1
12th-13th	0	0	4	5259.67	0		328.89	0	1
SUBTOTAL:	21	28	46	64435.61	8		3870.34	461.86	10

Landscape quantities (along southside of King Street)

Block	Street Trees (EA)	Shrubs (EA)	Lightpoles (EA)	Sidewalk (SF)	Bus Shelter Type (EA)		Electrical Conduit (LF)	Decorative Fencing (LF)	Trash Receptacles (EA)
2nd-3rd	7	0	10	9632.08	0		719.00	87.31	1
3rd-4th	0	0	4	4248.62	0		260.40	0	1
4th-5th	0	0	0	0	0		302.51	0	0
5th-6th	4	0	3	7424.29	0		312.26	0	1
6th-7th	2	0	3	5433.62	0		303.04	0	1
7th-8th	4	0	4	6188.49	0		313.37	0	1
8th-9th	0	0	0	0	2	std	521.91	0	0
9th-10th	5	0	5	4829.76	0		369.56	0	1
10th-11th	8	0	5	6427.66	0		366.47	0	1
11th-12th	0	0	0	0	0		0.00	0	0
12th-13th	6	0	5	4231.72	0		334.33	39.88	1
SUBTOTAL:	36	0	39	48416.24	2		3802.85	127.19	8
TOTAL:	**57**	**28**	**85**	**112851.85**	**10**		**7673.19**	**589.05**	**18**

Item		Unit	Quantity	Unit Cost		Total Cost	Reference
Street Trees		E.A.	57	$ 300.00		$ 17,100.00	See cost estimate for Landover
Shrubs		E.A.	28	$ 50.00		$ 1,400.00	See cost estimate for Landover
Lightpoles	x	E.A.	85	$ 3,000.00		$ 255,000.00	See cost estimate for Suitland F
Sidewalk		S.F.	112851.85	$5.00		$564,259.25	See cost estimate for Governor
Standard Bus Shelter		E.A.	8	$9,000.00		$72,000.00	
Custom Bus Shelter		E.A.	2	$14,000.00		$28,000.00	
Electrical Conduit	x	L.F.	7673.19	$17.00		$130,444.23	See cost estimate for Suitland F
Decorative Fencing		L.F.	589.05	$72.00		$42,411.60	See cost estimate for Suitland F
Trash Receptacles		E.A.	18	$750.00		$13,500.00	
Pedestrian Crosswalks	x	S.F.	16344.00	$15.00		$245,160.00	See cost estimate for Sheriff Ro
Tree Grates		E.A.	57	$ 750.00		$ 42,750.00	
Parking Meter Poles		E.A.	72	$ 400.00		$ 28,800.00	
Misc. Street Furnishings	x	L.S.	1	$ 50,000.00		$ 50,000.00	

King Street Cost Estimate Quantities

Earthwork quantities (for blocks being totally rebuilt)

Block	Length (LF)	Width (LF)	Depth (in.)	Excavation QTY. (CY)	Comments
9th-10th	320.7	40	17	673.07	These are the only two blocks listed in the 4/21/99 memo to be completely rebuilt.
12th-13th	284.6	36	17	537.58	
TOTALS:				1210.65	

Removal of Granite Curb (to be used on other projects)

Note: See set of 11"x17" plans for locations of granite curb

	Along King Street (LF)	Along side streets (LF)	COMB. TOTAL
TOTALS:	2595.9	510.2	3106.1

Removal of Concrete Curb

	Along King Street (LF)	Along side streets (LF)	
TOTALS:	2103.1	929.6	3032.7

Pavement quantities (along King Street)

Block	Length (LF)	Width (LF)	Pvmt. Depth (in.)	Base Depth (in.)	Subbase Depth (in.)	Surface QTY. (TONS)	Base QTY. (TONS)	Subbase QTY. (SY)	Milling QTY. (SY)	Comments
2nd-3rd	191.4	33	2	7	8	78.95	276.33	701.80	701.80	
2nd-3rd	242.8	40	2	7	8	121.40	424.90	1079.11	1079.11	
3rd-4th	114.8	33	2	7	8	47.36	165.74	420.93	420.93	
3rd-4th	125.8	40	2	7	8	62.90	220.15	559.11	559.11	
4th-5th	282.1	44	2	7	8	155.16	543.04	1379.16	1379.16	
5th-6th	289.3	40	2	7	8	144.65	506.28	1285.78	1285.78	Base and subbase quantities apply to the blocks of 9th-10th and 12th-13th. All other blocks receive milling and overlay.
6th-7th	127.6	33	2	7	8	52.64	184.22	467.87	467.87	
6th-7th	176.5	40	2	7	8	88.25	308.88	784.44	784.44	
7th-8th	152.7	40	2	7	8	76.35	267.23	678.67	678.67	
7th-8th	140.6	33	2	7	8	58.00	202.99	515.53	515.53	
8th-9th	374.6	40	2	7	8	187.30	655.55	1664.89	1664.89	
8th-9th	125.8	33	2	7	8	51.89	181.62	461.27	461.27	
9th-10th	320.7	40	2	7	8	160.35	561.23	1425.33	1425.33	
10th-11th	354.4	40	2	7	8	177.20	620.20	1575.11	1575.11	
11th-12th	363.2	36	2	7	8	163.44	572.04	1452.80	1452.80	
12th-13th	284.6	36	2	7	8	128.07	448.25	1138.40	1138.40	
TOTALS:	3666.9					1753.90	1009.47	2563.73	13026.47	
ADJ. TOTAL:	3858.9	The adjusted total represents the length of paving surface plus crosswalks.								

Pavement quantities (along sidestreets)

Sidestreet	Length (LF)	Width (LF)	Pvmt. Depth (in.)	Base Depth (in.)	Subbase Depth (in.)	Surface QTY. TONS	Base QTY. TONS	Subbase QTY. SY	Milling QTY. SY	Comments
2nd	35.6	33	2	7	8	14.69	51.40	130.53	130.53	
3rd	20.8	26	2	7	8	6.76	23.66	60.09	60.09	
4th	38.3	51	2	7	8	24.42	85.46	217.03	217.03	-Ave. width taken for 7th and 8th St. - Base and Subbase quantities can be ignored on all sidestreets because none are being rebuilt.
5th	25.6	26	2	7	8	8.32	29.12	73.96	73.96	
6th	23.3	26	2	7	8	7.57	26.50	67.31	67.31	
7th	26	48	2	7	8	15.60	54.60	138.67	138.67	
8th	28.5	30	2	7	8	10.69	37.41	95.00	95.00	
9th	36.7	33	2	7	8	15.14	52.99	134.57	134.57	
10th	18.6	44	2	7	8	10.23	35.81	90.93	90.93	
11th	212.2	60	2	7	8	159.15	557.03	1414.67	1414.67	
12th	38.3	46	2	7	8	22.02	77.08	195.76	195.76	
13th	0	0	2	7	8	0.00	0.00	0.00	0.00	
TOTALS:	503.9					294.58	1031.04	2618.51	2618.51	
ADJ. TOTAL:	719.9	The adjusted total represents the length of paving surface plus crosswalks.								

King Street Cost Estimate Quantities

Curb and Gutter quantities

Along King Street (LF)	Along side streets (LF)	TOTAL:	ADJ. TOTAL:
4699	1439.8	6138.8	6445.7

Utility Impacts for King Street

Cost for manhole adjustments is included in unit cost for sidewalk.

No relocation cost for poles or fire hydrants, since all sidewalks being widened or not changed.

Traffic Engineering (length of King Street + portions of sidestreets impacted by proposed streetscape)

Total Length (LF)

4578.8

Pavement Markings	(0.86 Miles)	
Signing and Striping	(0.86 Miles)	
Signal Mods.	8 Signals @ $40,000 each	$320,000
Lighting	To be included under landscape category	

Unit Costs:	Units	Unit Cost	**Reference**
Earthwork	C.Y.	$12.0	See Delaware Unit Price guide (7/97-6/98), Median Cost for Item 202000
Removal of Granite Curb	LF	$6.0	As per Jim Renaud
Removal of Conc. Curb	LF	$3.0	See Cost Est. for "Open 5th Street from King to Walnut" in black book
Bituminous Conc. Pavement, 2"	TONS	$28.0	See Delaware Unit Price guide (7/97-6/98), Median Cost for Item 401602
Bituminous Conc. Base, 7"	TONS	$30.0	See Delaware Unit Price guide (7/97-6/98), Median Cost for Item 306000
Graded Agg. Base Course, 8"	SY	$2.1	See Delaware Unit Price guide (7/97-6/98), Median Cost for Item 302002
Milling, 2"	SY	$3.0	See Delaware Unit Price guide (7/97-6/98), Median Cost for Item 760006
Curb and Gutter	LF	$13.0	See Delaware Unit Price guide (7/97-6/98), Median Cost for Item 704001
Lane Striping/markings	$14,260/mile		See cost estimating black book for traffic unit costs
Signing (delineation)	$920/mile		

Contingencies: **Reference**

Use 4-lane undivided, closed section under reconstruction

Category	**Contingency**
1	42%
3	31%
7	4%

See cost estimating black book for percentages (June 1996)

Costs per Item

Item	Cost
Earthwork	$14,528
Removal Of Granite Curb	$18,637
Removal Of Concrete Curb	$9,098
Bituminous Conc. Pavement, 2"	$57,357
Bituminous Conc. Base, 7"	$30,284
Graded Agg. Base Course, 8"	$5,384
Milling, 2"	$46,935
Curb and Gutter	$83,795
Lane Striping/Marking	$12,264
Signing (Delineation)	$791
Signal Mods.	$320,000

Notes: The reason some blocks have more than one entry line in the pavement section is because some blocks contain varied widths because of bulbouts/sidewalk widening, parking, etc. Judgement was used to determine which blocks should be broken up into multiple sections.

Under the curb removal section, "Comb. Total" refers to the combined total of curbing along King St. and the sidestreets.

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. base cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$667,200
1 Grading		
a.	Excavation	$0
b.	Borrow	$0
2 Drainage		$0
3 Traffic Lane Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$0
6 Miscellaneous		
a.	Curb/Gutter	$94,200
b.	Sidewalk	$444,500
c.	Fencing	$0
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$100,000
Other (Specify)		
7 Milling, 2"		$0
8 Removal of Conc. Curb		$13,100
9 Removal of Gran. Curb		$15,400
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. base cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$140,700	2 Signals	$0
1 Beautification	$140,700	3 Detour Signing	$0
2 Mitigation Related	$0		
		Other (Specify)	
F. MAINT. OF TRAFFIC	$225,000	4	$0
		5	$0
G. PRJ. TRAFFIC ITEMS	$11,900	Bureau Of Traffic Estimator:	
1 Signing Structures			
a. Overhead Bridges	$0		
b. Cantilever Supports	$0	**I. WETLAND MITIGATION**	$0
2 Roadway Lighting	$0	**J. UTILITY RELOCATION**	$0
		1 Water	$0
3 Pavement Markings	$11,900	2 Sanitary Sewer	$0
		3 Electric	$0
Other (Specify)		4 Telephone	$0
4	$0	5 Gas	$0
5	$0	6 CATV	$0
6	$0	7 Reimburseables	$0
H. BUR. OF TRAFFIC ITEMS	$800	Other (Specify)	
1 Signing	$800	8	$0
(traffic items continued above)		9	$0
		Utilities Estimator:	

K. SUBTOTAL (A thru J)	$1,045,600
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$52,280
M. INITIAL EXPENSE (normally 5% of K)	$52,280
N. CONSTRUCTION COSTS (K thru M)	$1,150,160
O. CONSTR. ENGINEERING (normally 15% of N)	$172,524
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$115,016
Contingency Used (%) ⟶ **10%**	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$1,438,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. street furnishing cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$80,100
1 Grading		
a.	Excavation	$0
b.	Borrow	$0
2 Drainage		$0
3 Traffic Lane Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$0
6 Miscellaneous		
a.	Curb/Gutter	$0
b.	Sidewalk	$0
c.	Fencing	$80,100
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$0
Other (Specify)		
7 Milling, 2"		$0
8 Removal of Conc. Curb		$0
9 Removal of Gran. Curb		$0
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. street furnishing cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$66,500	2 Signals	$0
1 Beautification - Street Furn.	$66,500	3 Detour Signing	$0
2 Mitigation Related	$0		
		Other (Specify)	
F. MAINT. OF TRAFFIC	$0	4 Street Furnishings	$0
		5	$0
G. PRJ. TRAFFIC ITEMS	$0	Bureau Of Traffic Estimator:	
1 Signing Structures			
a. Overhead Bridges	$0		
b. Cantilever Supports	$0	**I. WETLAND MITIGATION**	$0
2 Roadway Lighting	$0	**J. UTILITY RELOCATION**	$0
		1 Water	$0
3 Pavement Markings	$0	2 Sanitary Sewer	$0
		3 Electric	$0
Other (Specify)		4 Telephone	$0
4	$0	5 Gas	$0
5	$0	6 CATV	$0
6	$0	7 Reimburseables	$0
H. BUR. OF TRAFFIC ITEMS	$0	Other (Specify)	
1 Signing	$0	8	$0
(traffic items continued above)		9	$0
		Utilities Estimator:	

K. SUBTOTAL (A thru J)	$146,600
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$7,330
M. INITIAL EXPENSE (normally 5% of K)	$7,330
N. CONSTRUCTION COSTS (K thru M)	$161,260
O. CONSTR. ENGINEERING (normally 15% of N)	$24,189
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$16,126
Contingency Used (%) → 10%	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$202,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. lighting cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$0
1 Grading		
a.	Excavation	$0
b.	Borrow	$0
2 Drainage		$0
3 Traffic Lane Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$0
6 Miscellaneous		
a.	Curb/Gutter	$0
b.	Sidewalk	$0
c.	Fencing	$0
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$0
Other (Specify)		
7 Milling, 2"		$0
8 Removal of Conc. Curb		$0
9 Removal of Gran. Curb		$0
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE
(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. lighting cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-B of V

PART IV - CONSTRUCTION (CONTINUED)

E. LANDSCAPING	$0
1 Beautification	$0
2 Mitigation Related	$0
F. MAINT. OF TRAFFIC	$0
G. PRJ. TRAFFIC ITEMS	$431,600
1 Signing Structures	
a. Overhead Bridges	$0
b. Cantilever Supports	$0
2 Roadway Lighting	$431,600
3 Pavement Markings	$0
Other (Specify)	
4	$0
5	$0
6	$0
H. BUR. OF TRAFFIC ITEMS	$0
1 Signing	$0
(traffic items continued above)	
2 Signals	$0
3 Detour Signing	$0
Other (Specify)	
4	$0
5	$0
Bureau Of Traffic Estimator:	
I. WETLAND MITIGATION	$0
J. UTILITY RELOCATION	$0
1 Water	$0
2 Sanitary Sewer	$0
3 Electric	$0
4 Telephone	$0
5 Gas	$0
6 CATV	$0
7 Reimburseables	$0
Other (Specify)	
8	$0
9	$0
Utilities Estimator:	

K. SUBTOTAL (A thru J)	$431,600
L. CONTRACTOR'S CONST. ENG. (normally 5% of K)	$21,580
M. INITIAL EXPENSE (normally 5% of K)	$21,580
N. CONSTRUCTION COSTS (K thru M)	$474,760
O. CONSTR. ENGINEERING (normally 15% of N)	$71,214
P. CONTINGENCY COSTS - includes change order contingencies (normally 5% of Construction Costs for large projects and 20% for small projects)	$47,476
Contingency Used (%) → 10%	
Q. TOTAL CONSTRUCTION COSTS (N + O + P) (Use this total for Construction Project Estimate form line 7d)	$593,000

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. crosswalk cost
Estimator:	JAB	**Date:**	6/7/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$0
1 Grading		
a.	Excavation	$0
b.	Borrow	$0
2 Drainage		$0
3 Traffic Lane Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$0
6 Miscellaneous		
a.	Curb/Gutter	$0
b.	Sidewalk	$0
c.	Fencing	$0
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$0
Other (Specify)		
7 Milling, 2"		$0
8 Removal of Conc. Curb		$0
9 Removal of Gran. Curb		$0
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

CAPITAL IMPROVEMENT PROJECT COST ESTIMATE

(Current Dollars)

Contract No.	393274.00.28	**Project Title:**	Orange St. roadway upgrade cost
Estimator:	JAB	**Date:**	6/8/99

Part IV-A of V

PART IV - CONSTRUCTION

A. ROADWAY/APPROACH CONSTRUCTION		$178,100
1 Grading		
a.	Excavation	$0
b.	Borrow	$0
2 Drainage		$75,000
3 Traffic Lane Paving		
a.	Surface	$40,000
b.	Base	$0
c.	Subbase	$0
4 Shoulder Paving		
a.	Surface	$0
b.	Base	$0
c.	Subbase	$0
5 Erosion/Sediment Control		$25,000
6 Miscellaneous		
a.	Curb/Gutter	$0
b.	Sidewalk	$0
c.	Fencing	$0
d.	C.P.M. Schedule	$0
e.	Clearing/Grubbing	$0
Other (Specify)		
7 Milling, 2"		$38,100
8 Removal of Conc. Curb		$0
9 Removal of Gran. Curb		$0
10		

B. STRUCTURE CONSTRUCTION		$0
1 New Bridge		$0
a.	Type	
b.	Size	
c.	$/S.F.	
2 Old Structure Removal		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
3 Retaining Wall		$0
a.	Type	
b.	Size	
c.	$/C.Y.	
4 Box Culvert		$0
a.	Type	
b.	Size	
c.	$/S.F.	
C. PARK AND RIDE LOTS		$0
D. BERMS		$0
1 Noise Mitigation		$0
2 Visual Mitigation		$0

(Refer to Capital Improvement Project Form, Part IV - Continued)

Orange Street Cost Estimate Quantities

Landscape quantities (along northside of Orange Street)

Block	Street Trees (EA)	Shrubs (EA)	Lightpoles (EA)	Sidewalk (SF)	Bus Shelter Type (EA)		Electrical Conduit (LF)	Decorative Fencing (LF)	Trash Receptacles (EA)
2nd-3rd	0	0	6	5001.66	0		424.89	0	1
3rd-4th	4	0	4	3732.49	0		247.44	0	1
4th-5th	0	0	4	3915.15	1	std	334.66	57.2	1
5th-6th	0	0	4	2687.32	0		305.43	256.1	1
6th-7th	0	0	4	3211.19	0		309.17	0	1
7th-8th	0	11	5	2318.54	0		310.75	78.72	1
8th-9th	0	0	7	5108.65	1	std	517.35	0	1
9th-10th	0	0	5	3372.11	0		359.98	0	1
10th-11th	5	0	4	7201.16	0		367.69	0	1
11th-12th	3	0	4	4182.64	0		366.15	0	1
12th-13th	0	0	4	3485.24	0		331.25	0	1
SUBTOTAL:	12	11	51	44216.15	2		3874.76	392.02	11

Landscape quantities (along southside of Orange Street)

Block	Street Trees (EA)	Shrubs (EA)	Lightpoles (EA)	Sidewalk (SF)	Bus Shelter Type (EA)		Electrical Conduit (LF)	Decorative Fencing (LF)	Trash Receptacles (EA)
2nd-3rd	0	0	6	4757.43	1	std	403.44	0	1
3rd-4th	3	0	3	4124.51	0		250.69	0	1
4th-5th	5	0	3	4091.91	0		344.86	0	1
5th-6th	7	0	4	3325.18	1	std	310.42	255.77	1
6th-7th	0	0	4	2515.74	0		304.81	255.45	1
7th-8th	3	0	4	3225.19	1	cust	313.24	100.24	1
8th-9th	0	0	7	5271.31	1	cust	515.55	0	1
9th-10th	0	0	5	3753.48	0		359.68	0	1
10th-11th	0	0	4	4090.28	1	cust	364.54	0	1
11th-12th	5	0	4	5725.11	0		373.23	108.57	1
12th-13th	7	0	5	3797.72	0		322.11	0	1
SUBTOTAL:	30	0	49	44677.86	5		3862.57	720.03	11
TOTAL:	**42**	**11**	**100**	**88894.01**	**7**		**7737.33**	**1112.05**	**22**

Item	Unit	Quantity	Unit Cost	Total Cost	Reference
Street Trees	E.A.	42	$ 300.00	$ 12,600.00	See cost estimate for Landover
Shrubs	E.A.	11	$ 50.00	$ 550.00	See cost estimate for Landover
Lightpoles	E.A.	100	$ 3,000.00	$ 300,000.00	See cost estimate for Suitland F
Sidewalk	S.F.	88894.01	$5.00	$444,470.05	See cost estimate for Governor
Standard Bus Shelter	E.A.	4	$9,000.00	$36,000.00	
Custom Bus Shelter	E.A.	3	$14,000.00	$42,000.00	
Electrical Conduit	L.F.	7737.33	$17.00	$131,534.61	See cost estimate for Suitland F
Decorative Fencing	L.F.	1112.05	$72.00	$80,067.60	See cost estimate for Suitland F
Trash Receptacles	E.A.	22	$750.00	$16,500.00	
Pedestrian Crosswalks	S.F.	16680.00	$15.00	$250,200.00	See cost estimate for Sheriff Ro
Tree Grates	E.A.	42	$ 750.00	$ 31,500.00	
Parking Meter Poles	E.A.	45	$ 400.00	$ 18,000.00	
Misc. Street Furnishings	L.S.	1	$ 50,000.00	$ 50,000.00	