

NEW ORLEANS DOWNTOWN TRANSIT CENTER

ALTERNATIVES ANALYSIS

FINAL REPORT FEBRUARY 2020

Prepared for the:



New Orleans Regional Transit Authority

Prepared by:



WSP USA Inc.

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1 INTRODUCTION

The New Orleans Regional Transit Authority (RTA) has identified the need to determine potential locations for a centrally located transit center or similar facility to serve as the system's primary transfer point and as a major downtown bus stop. To make this determination, RTA initiated a Downtown Transit Center Alternatives Analysis (AA) in 2015.

1.1 BACKGROUND

The New Orleans Central Business District (CBD) serves as the focal point for transit services in the New Orleans region. The majority of the New Orleans Regional Transit Authority (RTA) bus routes, RTA's streetcar network, and various routes operated by Jefferson Parish Transit (JeT) converge on the CBD. The CBD is the region's largest employment and activity center; correspondingly, it is the largest destination for transit riders. Because so many routes and lines converge there, the CBD also functions as the system's primary transfer location. Nearly all routes in the regional system end in the CBD which then turn around to serve the outbound portion of their trip. There are few instances of interlined routes; that is, two segments that are linked in the CBD allowing buses to travel from one end of town to another without requiring a transfer.

There is no consolidated transfer location or facility in the CBD. Various routes and lines converge at different locations, mostly focused on or near Canal Street, to facilitate transfers to and from the Canal and Rampart streetcar lines, which are among the most heavily used transit lines in the region. The most significant area of concentration is at Elk Place and Canal Street.

Passenger amenities at Elk Place and other prominent transfer points are minimal. Seating and protection from the elements are in short supply. Many passengers walk several blocks to transfer from one route or line to another. These conditions have been recognized by RTA and stakeholders as a significant deficiency and prompted the initiation of the AA.

1.2 STUDY TEAM AND ADVISORS

The Alternatives Analysis (AA) was managed by RTA planning staff; work was conducted by RTA staff and a consultant team described in Table 1-1.

TABLE 1-1: ALTERNATIVES ANALYSIS PROJECT TEAM

Firm	Responsibilities
WSP (formerly Parsons Brinckerhoff)	Project management, coordination, transit planning
GCR Inc.	Transit planning
Manning Architects	Architectural and urban design
N-Y Associates	Environmental analysis
In The Event	Public and stakeholder outreach
ITE Regional, LLC	Traffic counts

RTA staff and the consultant team met on a regular basis over the duration of the AA; project progress and coordination calls were conducted weekly. A project kickoff meeting with RTA staff and representatives of the City of New Orleans was held on April 13, 2015 at the New Orleans Sewerage and Water Board office. At this meeting, the composition of a Technical Advisory Committee (TAC) was determined (Table 1-2).

TABLE 1-2: TECHNICAL ADVISORY COMMITTEE

Agency/Organization
RTA
City of New Orleans Sewerage and Water Board
City of New Orleans Place-Based Planning
City of New Orleans Department of Public Works
New Orleans City Planning Commission
New Orleans Regional Planning Commission
Downtown Development District

Two meetings of the TAC were held at RTA headquarters:

- July 19, 2015
- November 4, 2015

An Agency/Stakeholder Committee was also established (Table 1-3). It was composed of representatives of local, state and federal agencies that have a role in the development process, including coordination, reviews, certifications, and funding of a transit center project. It also included representatives of other interested organizations. The Committee provided the project team with the opportunity to brief representatives of the agencies and organizations on all aspects of the project and to address any agency concerns.

TABLE 1-3: AGENCY / STAKEHOLDER COMMITTEE

Member	Representing
Cynthia Steward	State of Louisiana Department of Culture, Recreation and Tourism
Nancy Borland	City of New Orleans
Lt. Col. Mark Jernigan	City of New Orleans Department of Public Works
Cindy Connick	Canal Street Development Corporation
Terrie Birkel	Jefferson Parish
Lauren Andrews	Jefferson Parish Transit (JeT)
Jerry Bologna	Jefferson Parish Economic Development Commission (JEDCO)
Kurt Weigle	Downtown Development Commission
Saddy Raphael	Latin American Civic Association of Louisiana
Michael Valentino	Basin Street Strategies
David Skinner	Saenger Theatre / Mahalia Jackson Center for the Performing Arts
Mike Sherman	Sherman Strategies

The Agency/Stakeholder Committee met on July 29, 2015 at RTA headquarters. Briefings were also provided to two standing RTA committees: Riders Advisory Committee and Special Transportation Services (STS) Committee. Three briefings were held at RTA headquarters:

- September 3, 2015 (STS Committee)
- November 3, 2015 (STS Committee)
- November 4, 2015 (Rider's Advisory Committee)

1.3 ANALYSIS PROCESS

An in-depth Existing Conditions assessment (Chapter 4) was conducted at the outset of the project to identify in detail:

- Demographic and socio-economic conditions of the study area
- RTA bus routes and streetcar lines, including alignments and stops
- RTA rider travel patterns, including bus stop and transfer activity
- Passenger facilities

A two-step identification and evaluation of transit center sites was conducted:

1. A “universe of alternatives” was identified by consultant and RTA staff. The alternatives included major current bus stops and transfer locations, sites identified in earlier and related planning initiatives, and additional locations that exhibited potential. The locations were screened by RTA staff and the consultant team using a scoring process based on a set of evaluation criteria. This step resulted in the identification of four primary alternative sites and several potential satellite locations.
2. A more in-depth evaluation of the four primary alternative sites was conducted, including the development and refinement of potential layouts and bus system operational plans. A detailed set of evaluation criteria was designed to lead to the identification of a Locally Preferred Alternative (LPA).

1.4 PROJECT STATUS

During the course of the AA, RTA initiated the process that led to the development of its Strategic Mobility Plan (SMP), which was completed in 2018. The SMP provides an in-depth analysis of existing conditions, current service, and community goals and vision for the regional transit system. Because of the pending redesign of the system, and its implications on determining a locally preferred alternative for a downtown transit center, a feasibility analysis was conducted of an additional potential location, at Canal Street and Claiborne Avenue. The analysis is included in the Appendix of this report. Upon its completion, work on the AA was paused to allow completion of the SMP and potential recommendations that may impact the siting and function of a potential downtown transit center.

With the completion of the SMP and its follow-up design phase, the New Links comprehensive operational analysis (COA), this report provides documentation of the findings and analysis conducted as part of the AA to help provide the basis on which to complete the selection process and identify a Locally Preferred Alternative (LPA).

2 PURPOSE AND NEED

This chapter identifies the major issues relating to the functionality of fixed route transit service that converges on the New Orleans Central Business District (CBD) for riders, the CBD community, and transit operations.

2.1 PROBLEM STATEMENT

Several key transportation and related issues and problems exist within the Downtown Transit Center AA study area:

- Bus and streetcar lines run on nearly every street running parallel to the river through the CBD, but very few routes travel far past Canal Street.
- Most routes serving downtown terminate at one of three informal hub areas.
- Boardings and alightings are concentrated downtown. Passenger boarding activity is heavily concentrated along Canal Street, Elk Place, and Rampart Street.
- Transit ridership has increased steadily and quickly since 2005 as RTA and JeT have been able to increase revenue hours as part of the recovery effort after Hurricane Katrina. Annual ridership increased from just over 15 million passenger trips in 2008 to over 25 million in 2013.
- Nearly one-third of all passenger boardings in the region occur in the CBD.
- CBD ridership activity is heavy throughout the day but is especially congested during weekday peak periods.
- Most transferring occurs in the CBD, but transferring between many routes requires walking or taking transit between the major transfer hubs, some of which are several blocks apart.
- A high volume of buses serve downtown.
- Buses lose a substantial amount of time in the CBD due to slowdowns during peak periods; buses travel very slowly through the CBD.
- The need to keep buses moving, along with limited bus stop space, restricts the ability to schedule driver layover at downtown route terminus locations.
- Passenger amenities such as shelters and seating in the CBD are scarce.

2.2 PURPOSE

The AA, in response to identified problems, was intended to achieve the following purposes:

- Enable safe, comfortable and convenient connections between buses and between buses and streetcars.
- Improve passenger amenities for passengers waiting for buses in the New Orleans CBD.
- Facilitate transferring between bus routes and between bus routes and streetcar lines.
- Enhance travel opportunities by transit throughout the community.
- Accommodate existing service levels and anticipated future service levels.
- Facilitate the design of cost effective routes within and through the CBD.
- Provide passenger amenities that are attractive and respond to passenger needs.
- Provide opportunities for economic growth, community revitalization and joint development.
- Develop a prominent and positive landmark for transit service and RTA.
- Create a facility or facilities that are considered an asset to the CBD and helps enhance the CBD environment.
- Develop a transit center that encourages, and does not discourage, economic development in the immediate vicinity and the CBD as a whole.
- Respect the needs and preferences of CBD property owners, business and residents.

2.3 NEED

Based on the existing conditions and trends in the study area, transportation and related problems were identified. Based on these problems, the following needs have been identified that the AA should address:

- Provide passenger amenities including shade and seating.
- Increase the ability for passengers to maximize transit services by providing convenient transfer opportunities.
- Minimize walking distances between bus and streetcar stops to facilitate transfers.
- Devise efficient routing that emphasizes directness.
- Respect the needs of existing and planned businesses at transit stop locations by providing passengers safe, comfortable and convenient locations to wait for buses without causing sidewalk crowding or blocking business entrances.
- Provide the opportunity to schedule layover at downtown terminus locations without impeding transit movements, traffic flow, and downtown businesses.
- Create an attractive and distinctive transit center in which RTA, its customers, and the CBD community as a whole can take pride in.
- Allow for economic and joint development opportunities.

2.4 PREVIOUS PLANS AND STUDIES

Three previously conducted studies have relevance to the Downtown Transit Center AA:

New Orleans Mobility and Parking Study, 2009. The New Orleans Downtown Development District (DDD) published this report to investigate ways of improving mobility and parking distribution in downtown. The report focused on strategies to decrease the need for parking by introducing measures to promote alternative forms of transportation. It noted that several transit routes terminate at Canal Street, making it difficult to use transit as a downtown circulation system. In addition to a “park once circulator” route, the study identified the need to improve bus stops and transit connections and included two relatively detailed proposals for the design of a transit hub at Elk Place and Canal Street. Both proposals consisted of turning a city block into a transit mall in which the neutral ground would be used for the movement of buses and passengers while allowing general traffic to still use the street but on a more limited basis.

“Proposed Option #1” (Figure 2-1) involved the use of Elk Place between Canal Street and Cleveland Place. (This location is no longer available due the subsequent construction of the Loyola Streetcar.)

FIGURE 2-1: 2009 DOWNTOWN DEVELOPMENT DISTRICT REPORT PROPOSED OPTION 1



Source: *New Orleans Mobility and Parking Study, Downtown Development District, 2009*

“Proposed Option 2” involved the use of Rampart Street between Canal Street and Tulane Avenue (Figure 2-2). Under this option, Rampart Street would become one-way at Canal Street. A route reconfiguration plan was developed for this option.

FIGURE 2-2: 2009 DOWNTOWN DEVELOPMENT DISTRICT REPORT PROPOSED OPTION 2



Source: *New Orleans Mobility and Parking Study, Downtown Development District, 2009*

Comprehensive Operational Analysis (COA), 2012. The New Orleans Regional Planning Commission (RPC) initiated the COA in 2011, during which data were gathered, and completed the study in May 2012. Its scope covered RTA and Jefferson Parish Transit (JeT) routes. The COA included recommendations designed to:

- Reduce bus circulation and travel time in the CBD.
- Reduce bus congestion and turning movements along Loyola, Elk, and Rampart.
- Facilitate crosstown trips.

The COA noted that “a number of bus routes have an end in and around the short block between Tulane and Canal, along Loyola and Elk, which functions as the biggest transit center in the system, although no passenger waiting facilities and infrastructure are provided.” The COA suggested that “Proposed Option 2” in the 2009 DDD study referenced above could be an appropriate way to reconfigure routes around improved passenger amenities.

“Smart Transit for a Strong Economy: Why New Orleans Should Invest in its CBD Transit Hub,” 2014.

This study was commissioned by RIDE New Orleans, a non-profit organization established to promote public transportation in the New Orleans area. The report focused on the area around Elk Place and Canal Street and identified the conditions that transit riders encounter:

- Poor wayfinding signage.
- No available transit maps or route schedules.
- Limited seating and shade.
- Considerable distances between bus stops for transferring passengers.
- Lack of off-board fare purchase infrastructure.
- Narrow, crowded sidewalks.
- No available public restrooms.

The report highlighted the benefits that could be derived from a well-designed, downtown transit facility:

- Improved experience for current riders that could also attract new riders.
- A more pleasant downtown environment by shifting large numbers of passengers waiting on the sidewalk in front of stores and other businesses.
- Improved safety for pedestrians and motorists by limiting the number of street crossing required for passengers to make a transfer.

3 PUBLIC AND STAKEHOLDER OUTREACH

3.1 OUTREACH PLAN

An Outreach Plan, including a draft schedule of outreach activities, was developed at the outset of the project to maximize stakeholder and public involvement through direct outreach, briefings, meetings, online tools, and surveys. The full Outreach Plan is included in the Appendix of this report.

Toward that end, the Community Outreach Plan was designed to follow the guidelines of the Client's Title VI and Environmental Justice Policy, including Spanish and Vietnamese interpreters and sign language translators to assist the hearing impaired, and accommodations were made for mobility impaired citizens at public meetings.

The purpose of the Community Engagement Plan is to solicit public involvement in assessing the alternatives and determining the LPA. It is the intent of the plan to achieve the following objectives:

- Educate interested stakeholders about all aspects of the project.
- Encourage public participation by providing multiple opportunities and a variety of tool/vehicles for public input.
- Build consensus that best meets the needs of a diverse public.

The Outreach Plan includes an Agency Coordination Plan. Recognizing that the outcome of the AA – the LPA would likely require federal and state funding and involvement – it was essential that various agencies and relevant organizations be involved at every step of the process, and that those agencies and organizations have opportunities inform their constituencies and allow for the RTA to address any concerns.

Outreach tools and strategies included:

- Technical Advisory Committee
- Collateral print material
- Mass media (print and broadcast)
- Online communications through RTA's website, RTA's Rider's Digest, and email blasts
- RTA social media
- Surveys
- Public meetings

3.2 OUTREACH ACTIVITIES

Ridership Workshop. A workshop was conducted on July 28, 2015 at RTA headquarters to obtain information, opinions and ideas from RTA users and persons who represent the interests of RTA users. Attendance was by invitation and included members of RIDE New Orleans. The workshop featured a briefing on the study purpose and need, existing conditions, and the outcome of the first step of the alternatives evaluation process. A survey was conducted to determine transit center amenity preferences. Meeting notes are included in the Appendix of this report.

Public Open House. An open house was conducted on July 28, 2015 at RTA headquarters (shown below) to obtain information, opinions and ideas from the general public. Attendance was encouraged through the use of posters in RTA buses and streetcars, mailings, emails, phone calls, and announcements on RTA's website and in the New Orleans Advocate. It featured a briefing on the study purpose and need, existing conditions, and the outcome of the first step of the alternatives evaluation process. A survey was conducted to determine the transit center amenity preferences. Meeting notes are included in the Appendix of this report.



Online. Announcements of the Public Open House, along with the Open House presentation, were posted on RTA's website. In addition, the transit center amenity survey was also posted to allow for additional community input.

Individual Stakeholder Meetings. A series of meetings and briefings with groups and individuals was held throughout the study process (Table 3-1).

TABLE 3-1: INDIVIDUAL STAKEHOLDER MEETINGS

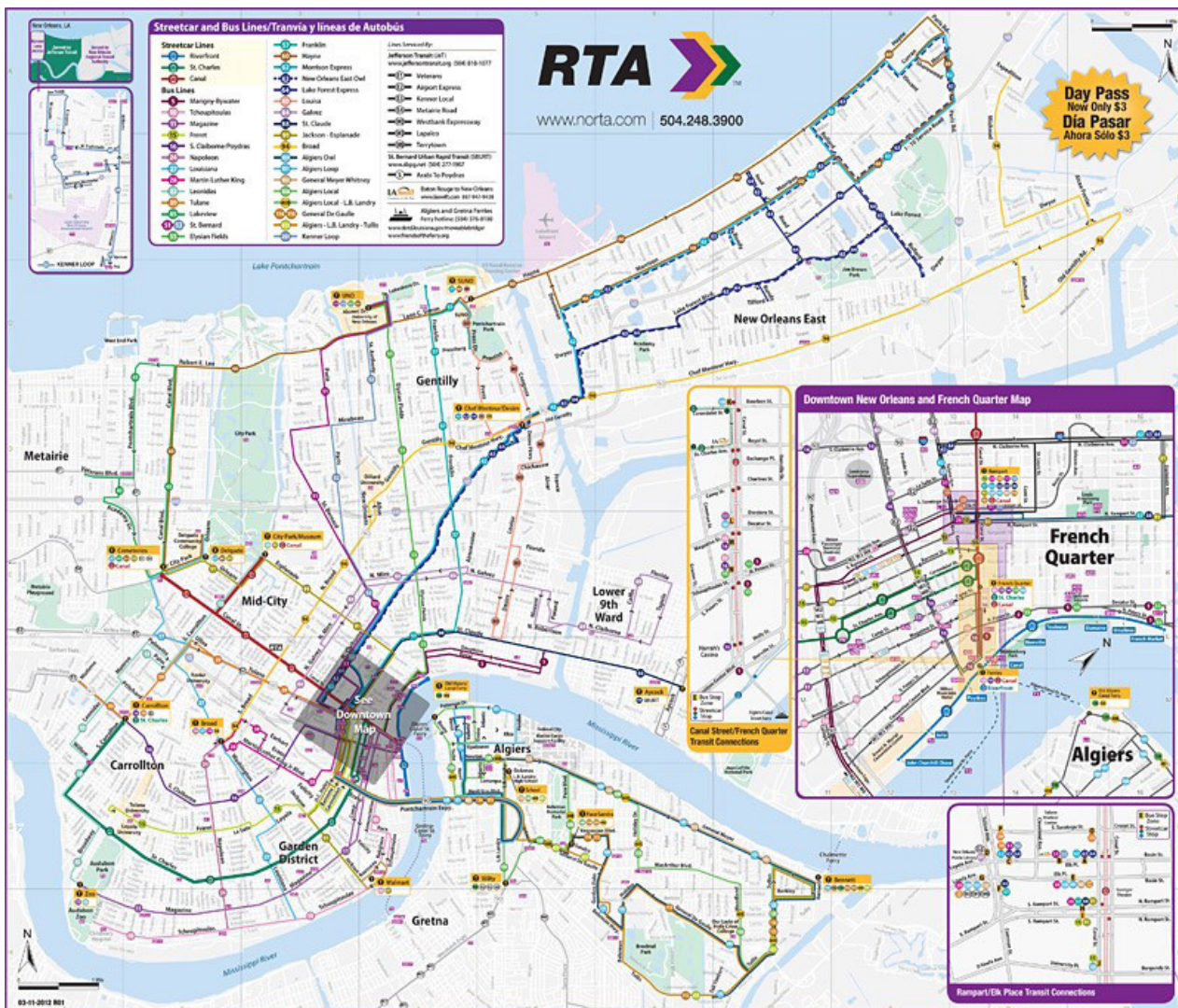
Date	Stakeholder	Subject
May 27, 2015	Pres Kabacoff, HRI Properties New Orleans Councilmember Guidry	Project briefing Project briefing
July 27, 2015	New Orleans City Councilmember Brossett New Orleans City Councilmember Gray Fred King III, representing New Orleans Councilmember Ramsey New Orleans Councilmember Williams	Project briefing Project briefing Project briefing Project briefing
August 8, 2015	Transdev planning staff	Coordination
August 17, 2015	New Orleans Place-Based Planning Director William Gilchrist	Alternatives
August 21, 2015	Transdev planning staff	Coordination
October 14, 2015	RTA Transdev Vice President Justin Augustine	Project status
November 3, 2015	Downtown Development District	Alternatives
November 17, 2015	Meeting with Sewerage and Water Board Director Cedric Grant Meeting with RTA Transdev Vice President Justin Augustine	Alternatives Facility design

4 EXISTING CONDITIONS

4.1 RTA SYSTEM

The RTA system, as shown in Figure 4-1, consists of 34 bus routes and three streetcar lines that serve most of Orleans Parish (City of New Orleans) and limited portions of Jefferson Parish. All three streetcar lines and 28 bus routes serve downtown. Seven JeT routes provide service from various parts of Jefferson Parish to downtown. All but one downtown-focused inbound route terminates and turns around downtown and heads in the outbound direction. The exception is Route 91 Jackson-Esplanade, which consists of two “legs” serving opposite sides of downtown that operate as a single route through downtown.

FIGURE 4-1: RTA SYSTEM MAP



Source: New Orleans Regional Transit Authority, 2013

4.2 BUS AND STREETCAR STOPS

Several dozen bus and streetcar stops are located throughout downtown and surrounding areas. Stops are generally located every block; buses serving a particular street can pick up and drop off at any designated stop along the route. Nearly all stops are designated by a bus stop or streetcar stop sign. The greatest concentration of RTA stops is in the Rampart-Elk Place area between Canal and Tulane streets. Bus and streetcar stops are illustrated in Figure 4-2, following this section.

4.3 PASSENGER AMENITIES

The availability of passenger amenities – specifically, shelters and benches – at bus and streetcar stops is illustrated in Figure 4-3, following this section. Most stops have no amenities and consist of a passenger waiting zone within the public right-of-way, primarily on sidewalks shared with pedestrian traffic. A handful of stops feature a bench but no shelter. Most stops with both shelters and benches are located along the Canal, Riverfront, and recently opened Loyola streetcar lines. The St. Charles line has no shelters at its stops in the CBD.

Most bus routes have few passenger amenities downtown with the exception of those that operate along Poydras and Tulane streets.

4.4 RIDERSHIP ACTIVITY

Ridership activity (passenger boardings and alightings) is heavily focused along and in the immediate vicinity of Canal Street, which is served by the high-frequency Canal Streetcar line. Canal Street also serves as the downtown terminus of several RTA routes. The greatest concentrations of ridership activity along Canal are at Rampart, Elk Place, Carondelet, and St. Charles. Steady ridership activity also occurs along the St. Charles Streetcar Line (St. Charles and Carondelet, the Riverfront Streetcar line, Poydras Street, Tulane Street, and the one-way pair of S. Rampart and O’Keefe). Ridership activity is illustrated in Figure 4-4, following this section.

The top 25 downtown bus and streetcar stops in terms of ridership activity are listed in descending order in Table 4-1. The top four locations (with over 1,000 combined daily boardings and alightings) are on Canal Street. The busiest stop is at Canal and Carondelet at the junction of the Canal and St. Charles Streetcar lines (4,287 combined boardings and alightings). Its level of on-off activity is nearly double that of the next busiest stop location, at S. Rampart and Canal streets, followed by Elk Place at Canal and Harrah’s Casino at Canal.

A list of all downtown bus stops and corresponding ridership activity is included in the Appendix of this report.

4.5 TRANSFER ACTIVITY

Downtown is the system’s dominant transfer location. In the absence of a central or consolidated transfer facility, the primary transfer locations can be loosely defined as four “hubs” – Union Passenger Terminal (UPT), Elk Place at Canal, St Charles at Canal, and N. Peters and Canal, as depicted in Figure 4-5. Boardings and alightings at the transfer hub areas are shown in Figure 4-6. Both figures follow this section.

TABLE 4-1: AVERAGE DAILY BOARDING AND ALIGHTING ACTIVITY – TOP 25 LOCATIONS (2014)

Stop /Station	Stop ID	Mode	Ons	Offs	Total
Canal at Carondelet	256	S	1809	2478	4287
S. Rampart at Canal	446	B	1204	1311	2515
Elk Place at Canal	990	B	1126	715	1841
Harrah's Casino	8237	S	416	989	1405
St. Charles at Common	811	S	811	9	820
French Market Station	10	S	286	503	789
Canal and Carondelet (In)	809	S	143	595	738
Elk Place at Canal	3195	B	362	304	666
Saratoga at Canal	752	B	645	0	645
Canal and Bourbon (Out)	5533	S	458	183	641
Elk Place at Cleveland	7636	B	314	314	628
Elk Place at Tulane	753	B	479	128	607
Canal at Magazine	3472	B	94	484	578
Elk Place and Canal	1572	B	1	492	493
Canal and N. Peters (Out)	5535	S	485	0	485
Canal at Tchoupitoulas	813	B	251	184	435
Carondelet at Poydras	254	S	66	354	420
Canal and Basin (Out)	5530	S	293	111	404
S. Rampart at Canal	8274	B	165	239	404
Canal and N. Rampart (Out)	5425	S	257	130	387
John Churchill Chase Station	1	S	227	146	373
Canal and Elk Place (In)	805	S	106	264	370
Canal and Baronne (In)	808	S	91	252	343
Tulane at Loyola	7727	B	121	211	332
Canal Street Station	4	S	237	89	326

Source: New Orleans Regional Transit Authority, 2014

S: Streetcar Stop

B: Bus Stop

According to RTA's Ridership and Transfer Matrix (May 2014), only 85% of total system riders transfer between buses and/or streetcars to complete their trip. However, 67% of those transfers occur downtown. Of those transferring downtown, 66% stay within their "hub" location. For example, the majority of transfers occur between routes and lines at Hub B (Elk-Canal).

As shown in Figure 4-7, following this section, the most significant passenger movement between hubs to accomplish their transfer is between Hub B (Elk-Canal) and Hub C (St. Charles-Canal): over 13,000 transfers are made with an approximate walk time of six minutes. While not a large amount, some riders have to walk up to 22 minutes to make their transfer connection (between UPT and N. Peters-Canal).

As shown in Figure 4-8, following this section, moving between certain neighborhoods of New Orleans requires transfers between the four downtown "hubs." West Bank routes, for example, are concentrated at Elk-Canal and UPT. Transfer connections are physically convenient to most downriver and East New Orleans routes but less so for connections to Uptown neighborhoods.

4.6 CBD EMPLOYMENT

As shown in Figure 4-9, downtown employment is primarily focused on the Canal and Poydras corridors and the area in between. Employment concentrations extend north of this area, between Poydras and Tulane, which is dominated by medical facilities. Concentrations of employment extend downriver through the heart of the Vieux Carre and upriver along the St. Charles Streetcar corridor. The current "hubs" along Canal Street are convenient to most of this concentration. The hub at UPT, however, is considerably removed from the heart of the major downtown employment concentration.

4.7 TRANSIT OPERATIONS

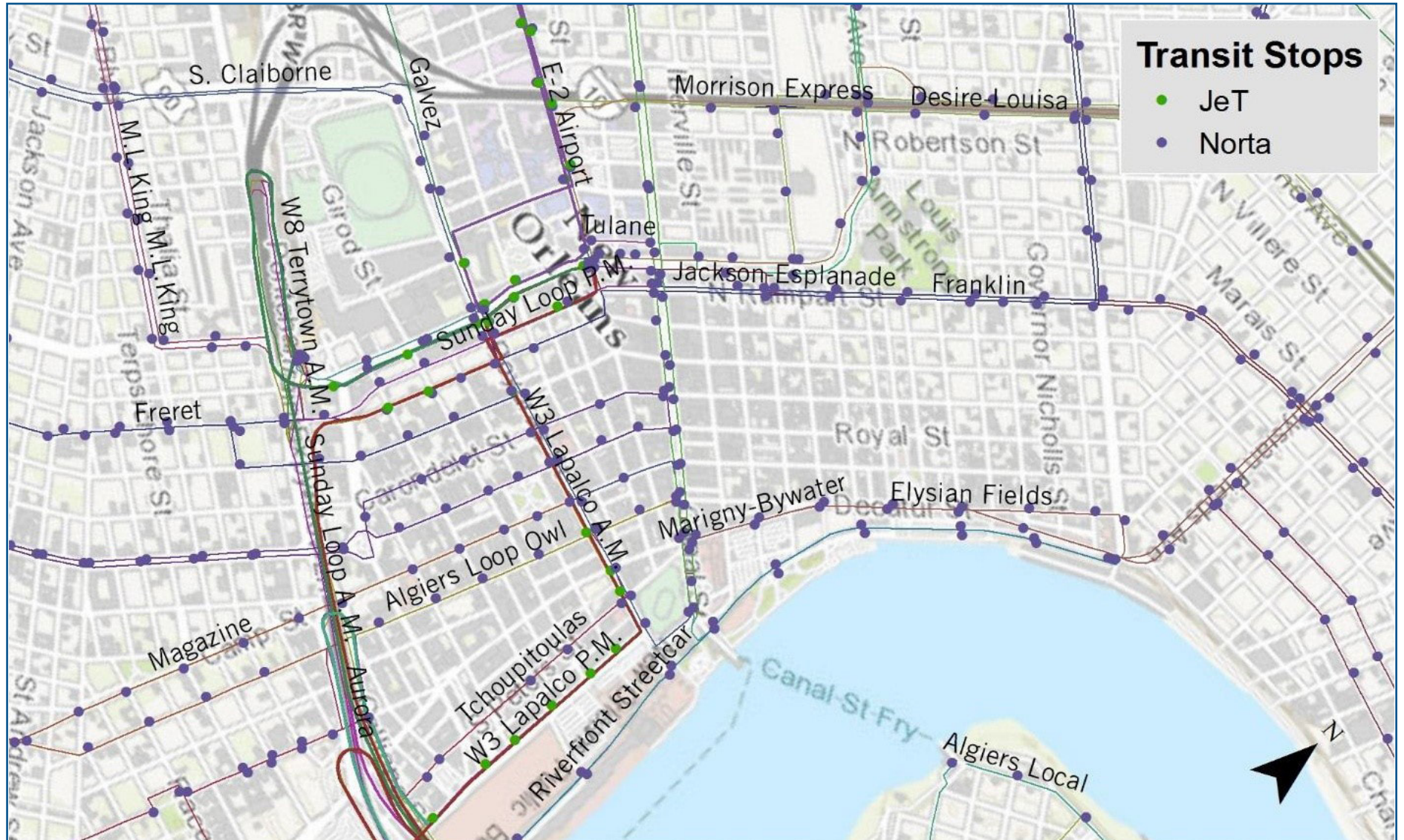
Bus arrival activity downtown is steady throughout the day as shown in Figure 4-10, following this section. Because service is less frequent during the idle of the day, spikes in activity occur less frequently than during the morning and afternoon/evening peak periods. Bus activity at Hub C (Elk-Canal) is considerably higher than the other major transfer hub locations.

Ridership distribution by time of day is at its highest during the morning and afternoon/evening peak periods but remains very steady and close to peak period levels during the middle of the day (Figure 4-11, following this section). Ridership drops sharply after the PM peak based on lower demand and lower level of service availability at night.

4.8 DEMOGRAPHICS

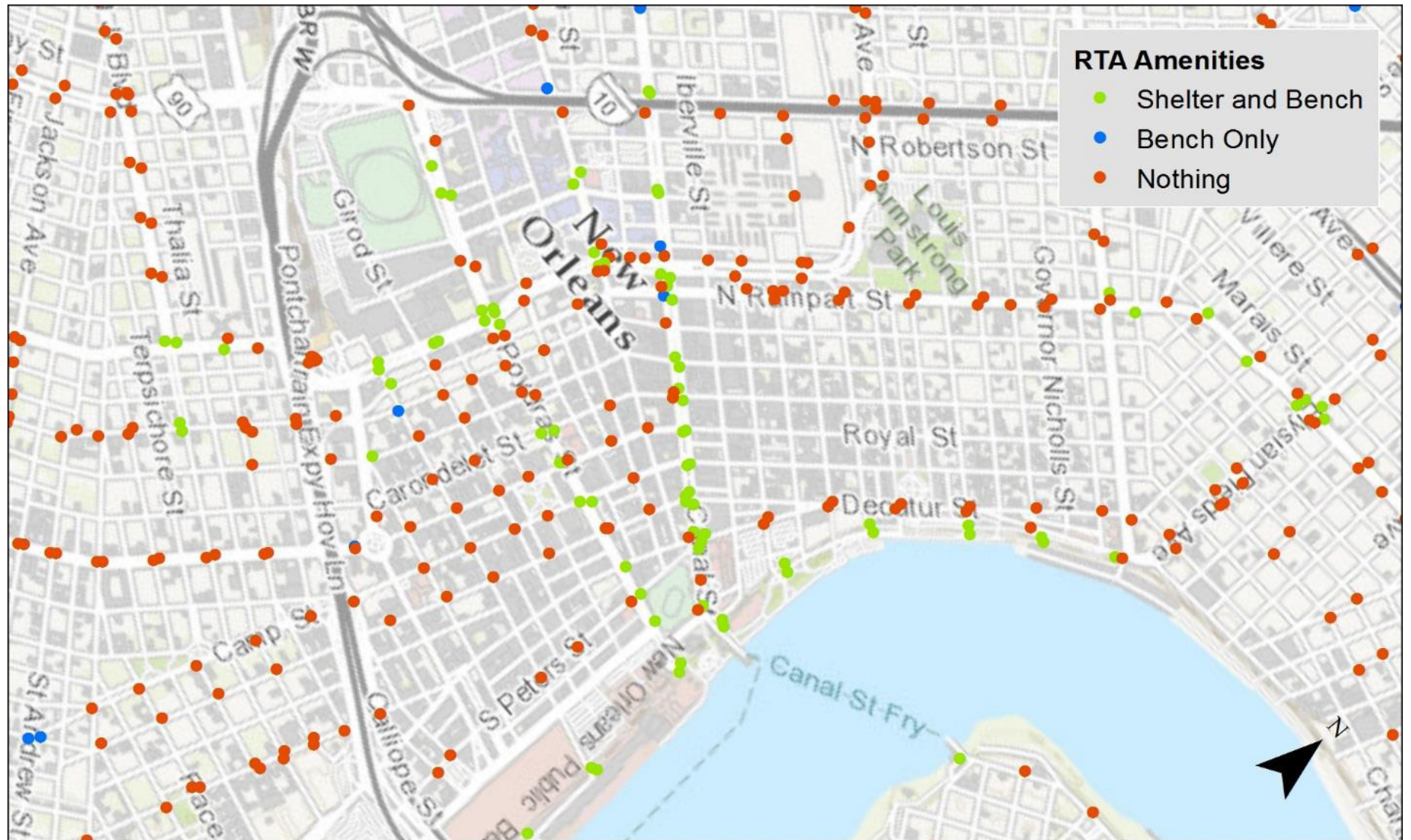
A set of demographic maps conducted of the study area using available data from the 2010 census and 2013 American Community Survey (ACS), is included in the Appendix of this report.

FIGURE 4-2: BUS STOPS



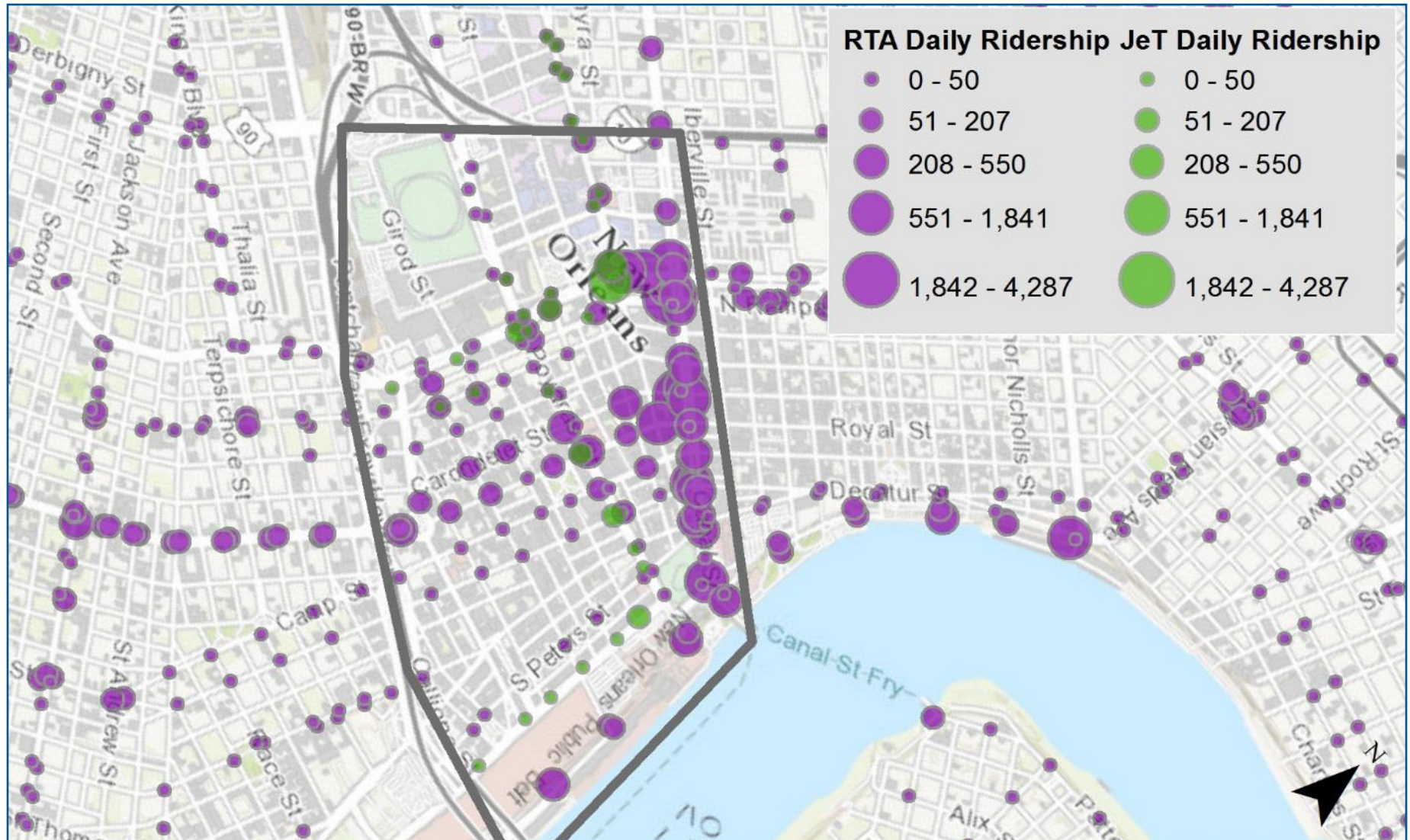
Source: New Orleans Regional Transit Authority, Jefferson Parish Transit, 2014

FIGURE 4-3: PASSENGER AMENITIES



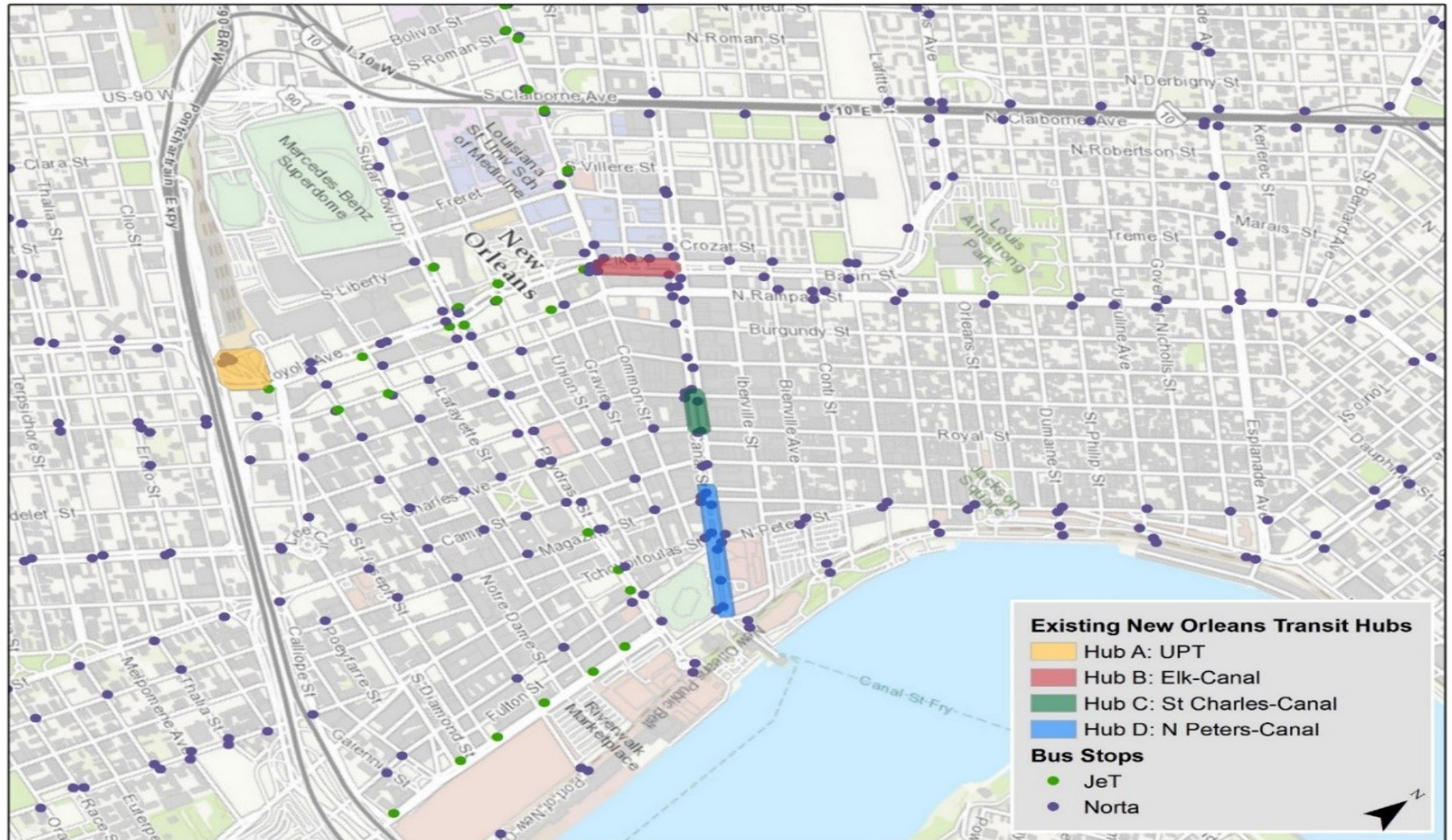
Source: New Orleans Regional Transit Authority, 2014

FIGURE 4-4: RIDERSHIP ACTIVITY (BOARDINGS AND ALIGHTINGS COMBINED)



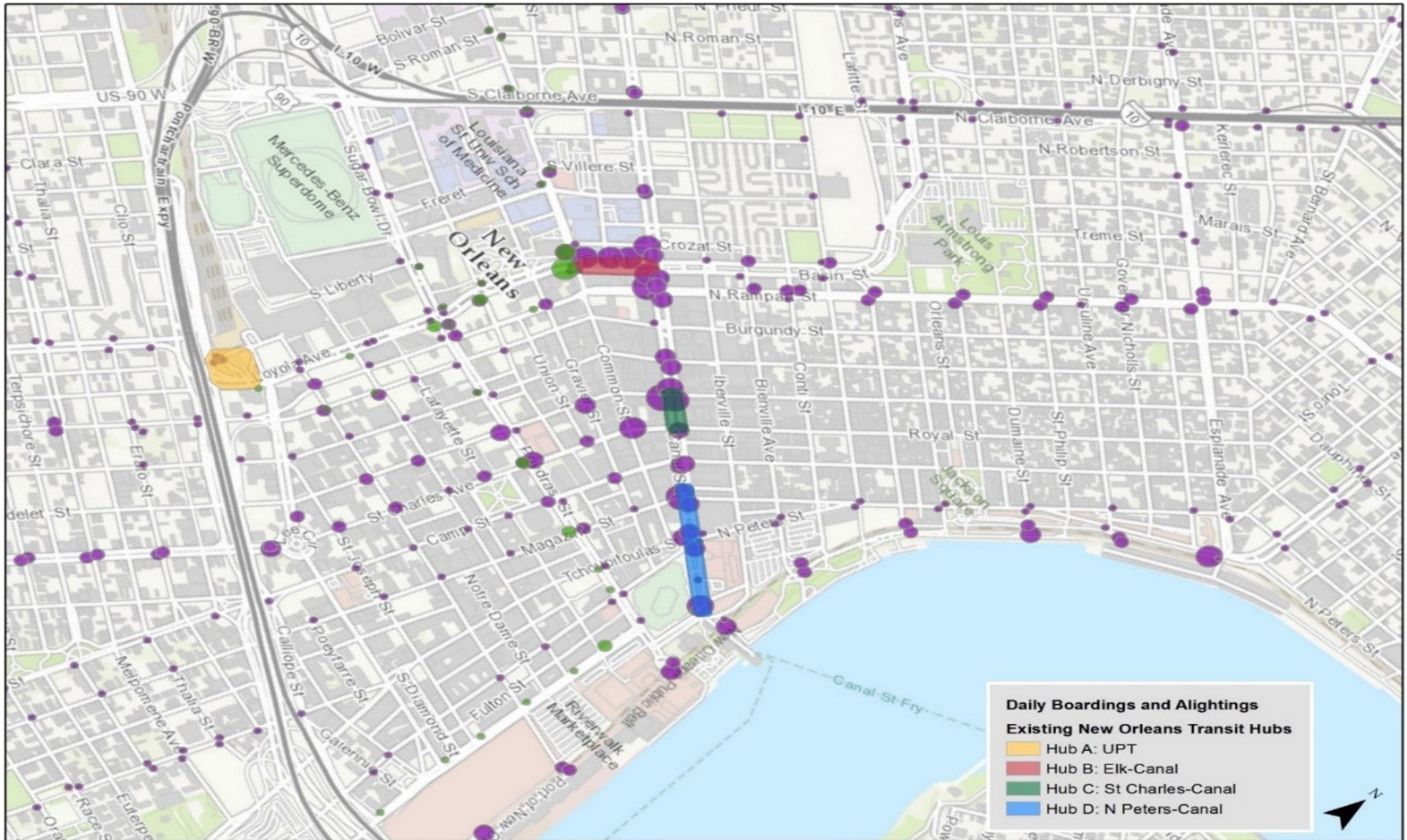
Source: Comprehensive Operational Analysis, New Orleans Regional Planning Commission, 2012

FIGURE 4-5: DOWNTOWN TRANSFER CONCENTRATIONS (“HUBS”)



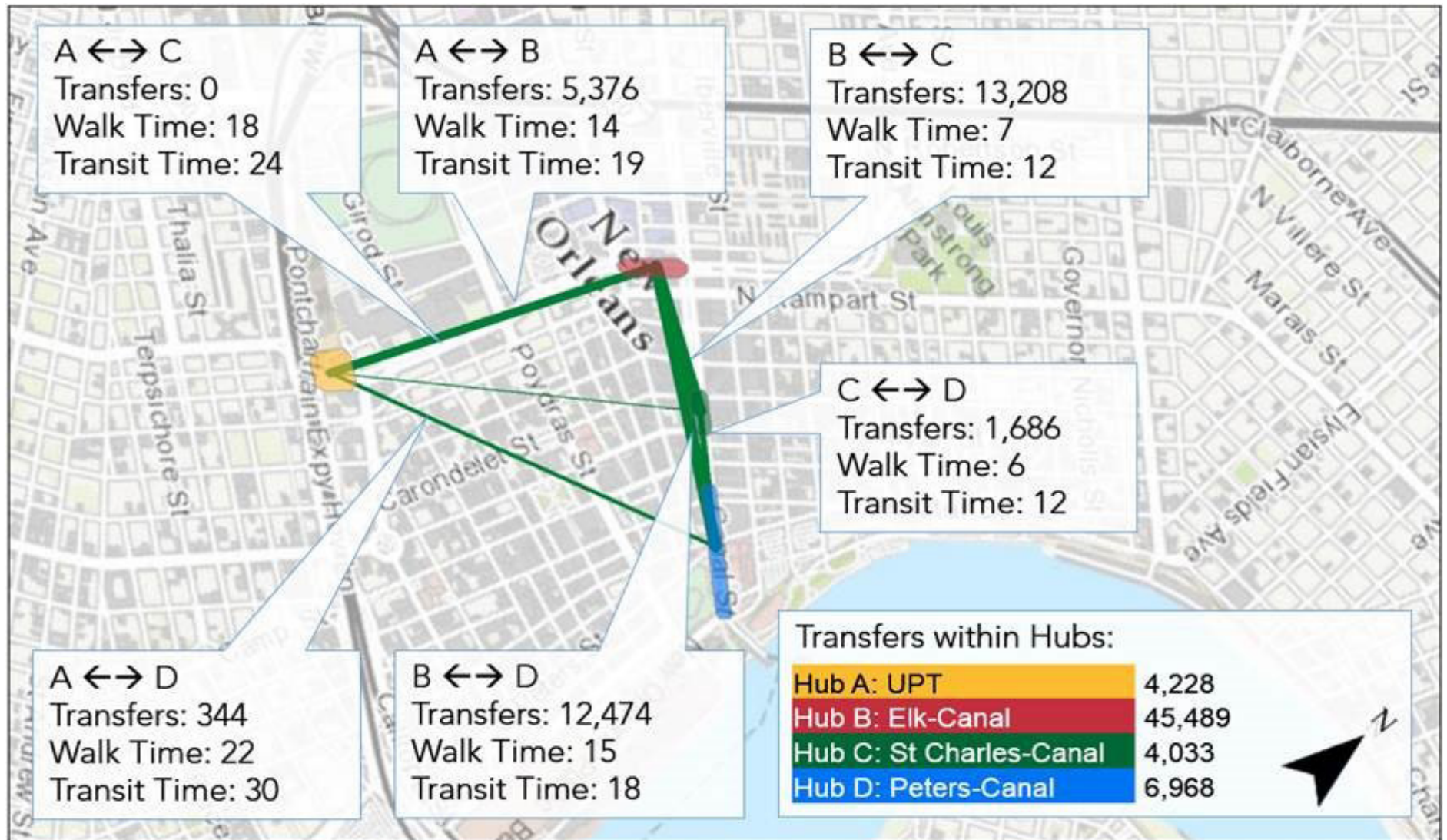
Source: Comprehensive Operational Analysis, New Orleans Regional Planning Commission, 2012

FIGURE 4-6: BOARDINGS AND ALIGHTINGS AT TRANSFER HUBS



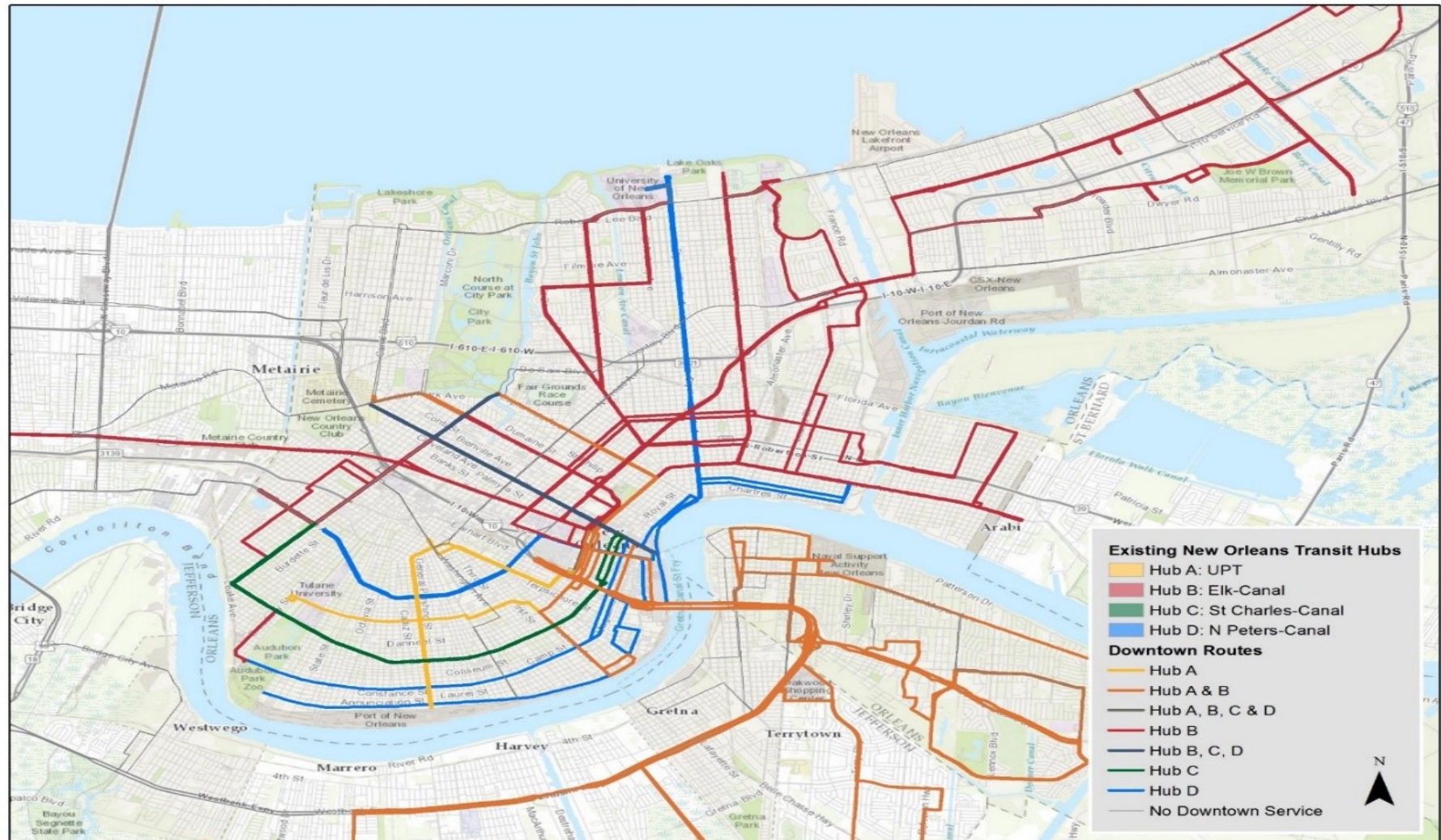
Source: Comprehensive Operational Analysis, New Orleans Regional Planning Commission, 2012

FIGURE 4-7: TRANSFER ACTIVITY



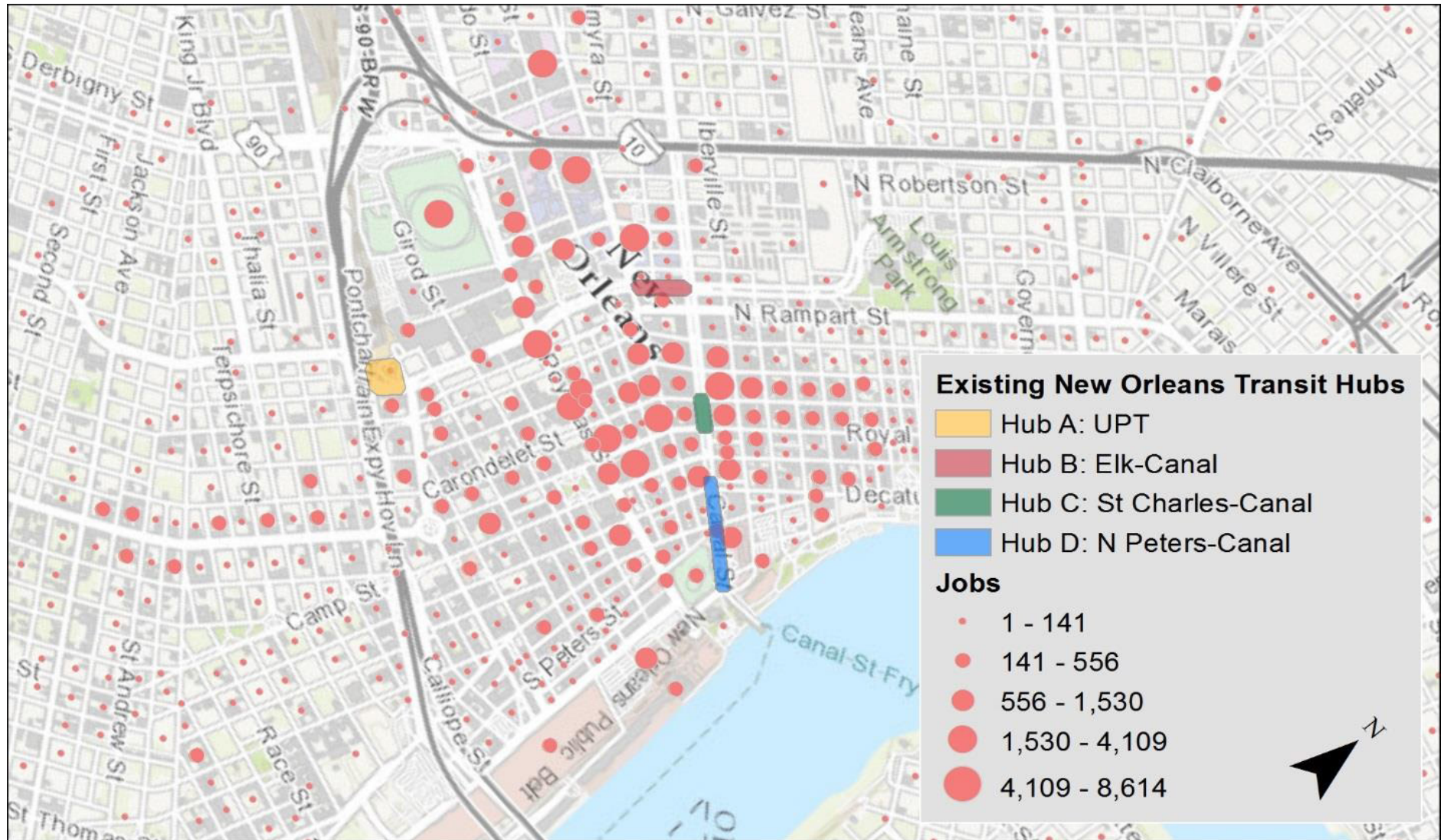
Source: New Orleans Regional Transit Authority, 2014

FIGURE 4-8: ROUTES BY DOWNTOWN HUBS



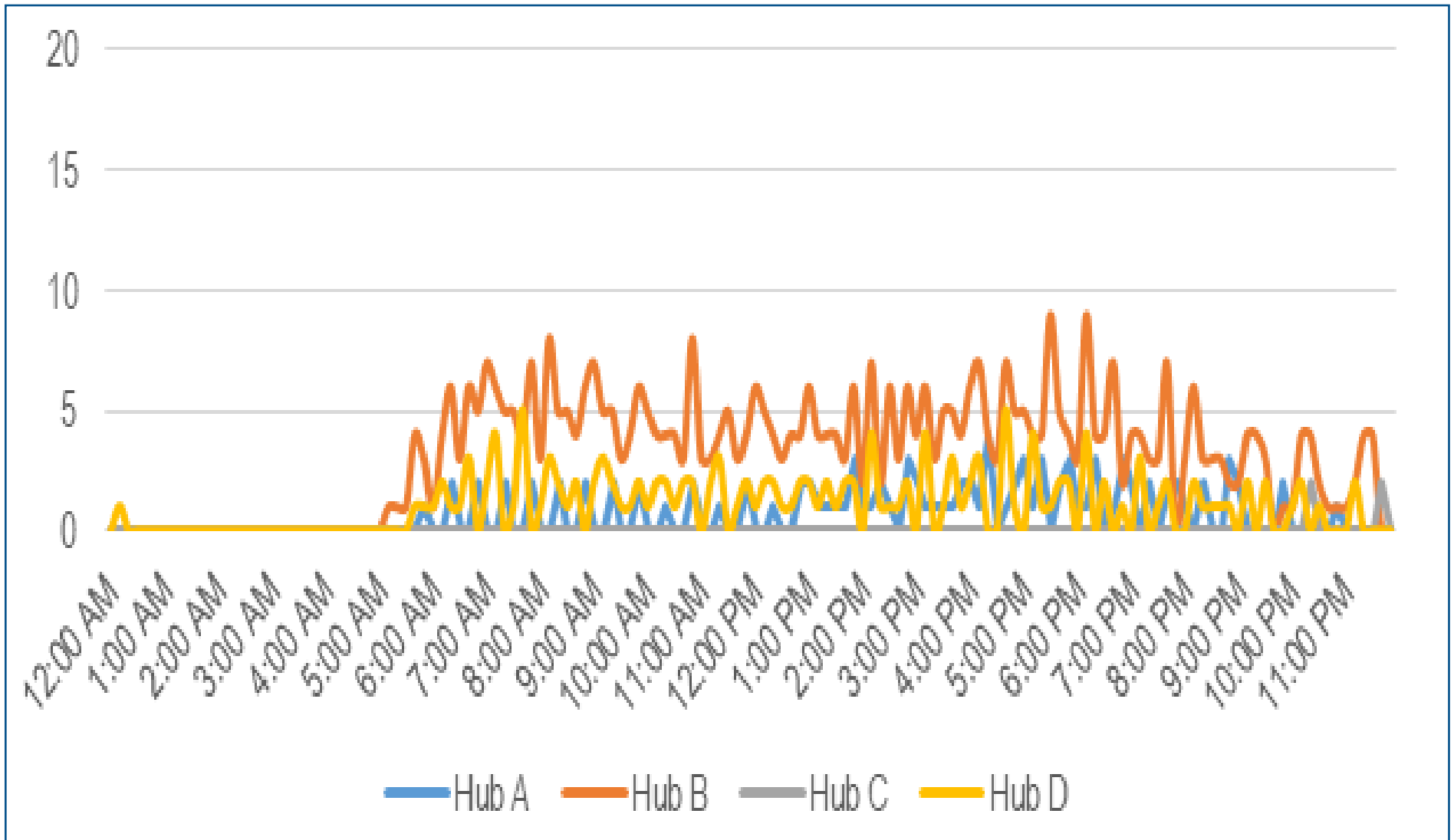
Source: New Orleans Regional Transit Authority, Jefferson Parish Transit, 2015

FIGURE 4-9: CENTRAL BUSINESS DISTRICT EMPLOYMENT



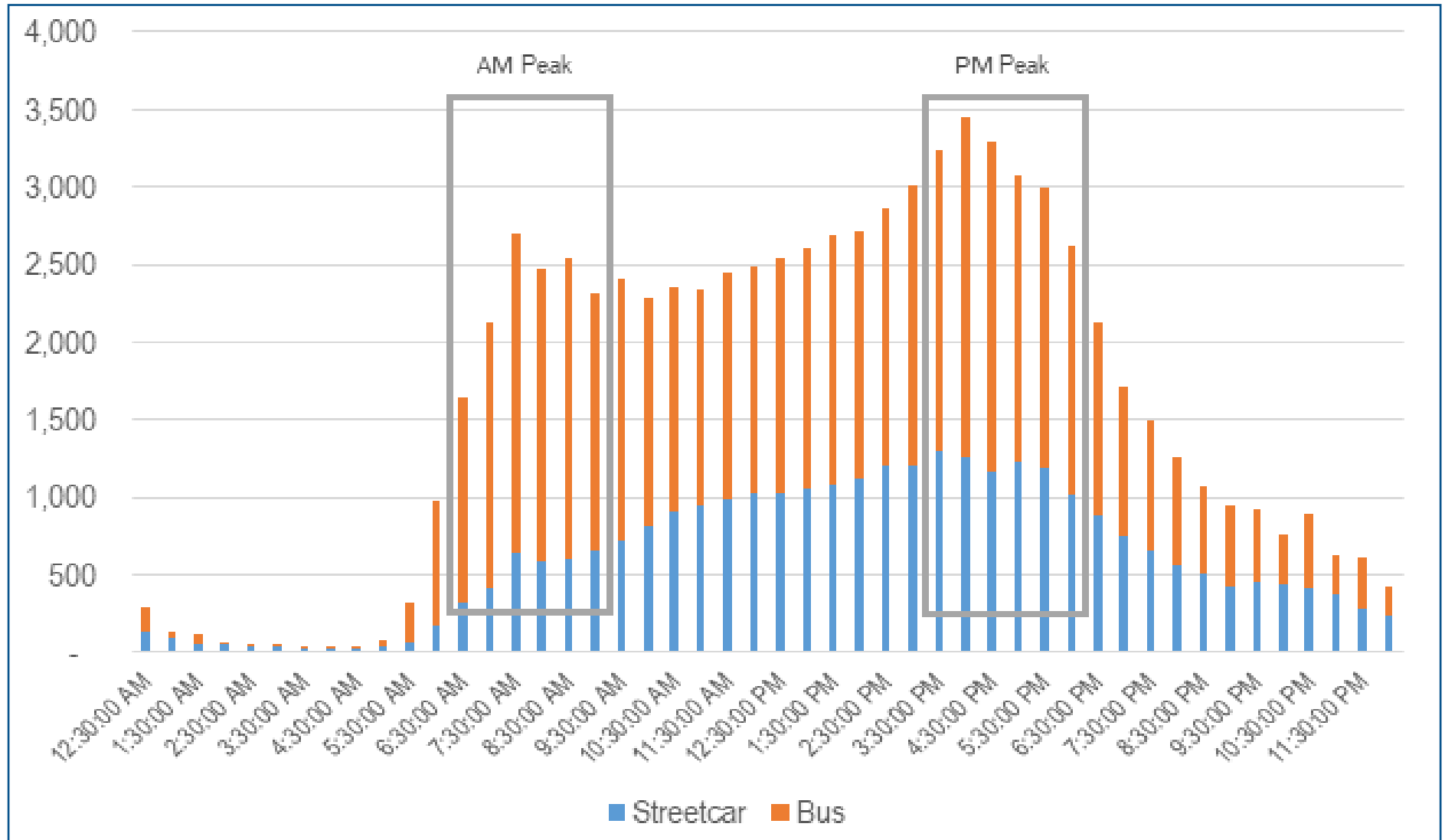
Source: U.S. Census Bureau - Longitudinal Employer - Household Dynamics Origin-Destination Employment Statistics, 2011

FIGURE 4-10: RTA BUSES ARRIVING TO CBD TRANSIT HUBS



Source: New Orleans Regional Transit Authority

FIGURE 4-11: PASSENGER ACTIVITY



Source: Comprehensive Operational Analysis, New Orleans Regional Planning Commission, 2012

5 Transit Center Typologies and Features

Transit centers can take many forms. Several different types of facilities can be designed, based on local conditions, needs, sites, and funding. Transit centers across the U.S. feature an array of features and design elements, many of which may apply to a downtown New Orleans facility. This chapter describes transit center typologies and features, illustrated with examples from U.S. cities, with an eye on situations and conditions that potentially relate to this study. Local preferences for the types of features sought in a downtown transit center in New Orleans, based on surveys conducted during stakeholder and public meetings, are also presented.

5.1 TYPOLOGIES

The types of transit centers range from fully covered, off-street structures to on-street, open air facilities.

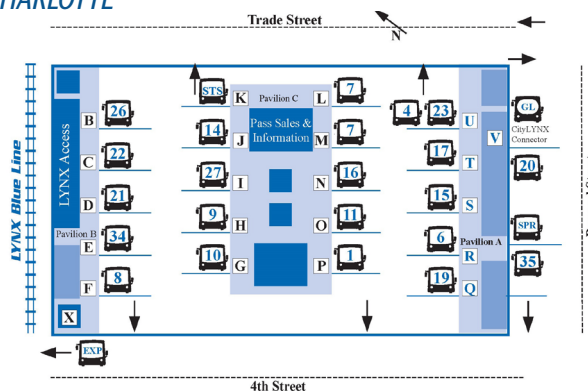
Covered / Off-Street

A prominent example of a fully enclosed/off-street facility is the Downtown Transportation Center in Charlotte, North Carolina (Figure 5-1). The 35,000-sq. ft. transit center, which opened in 1995, occupies a full city block and functions as the central transfer point and primary downtown bus stop of the Charlotte Area Transit System (CATS). It is open at both ends to allow buses to enter and exit, and provides for air circulation. Because it is open on two sides, the main bus and passenger area is not climate controlled. However, climate control is provided for retail spaces and other facilities located inside the center. Services in the transit center include a police substation, post office, medical clinic, fast food outlets, and a convenience store.

FIGURE 5-1: DOWNTOWN TRANSPORTATION CENTER, CHARLOTTE



Source: Charlotte Areal Transit System



The interior consists of two bus lanes that accommodate 20 bus bays (stops) and sufficient room for buses to pass one another unobstructed. A center “island” platform, which contains an information center and fare sales outlet, is flanked by ten bus bays (five on either side). Side platforms on both sides of the facility accommodate an additional five bays apiece. Two more bays are located outside the center, accommodating express buses and CAT’s Sprinter BRT service. While none of the sites considered for a transit center in New Orleans is of the magnitude of Charlotte’s facility, portions of the layout, such as the center island platform, apply to the neutral ground sites under consideration for a downtown transit center in New Orleans.

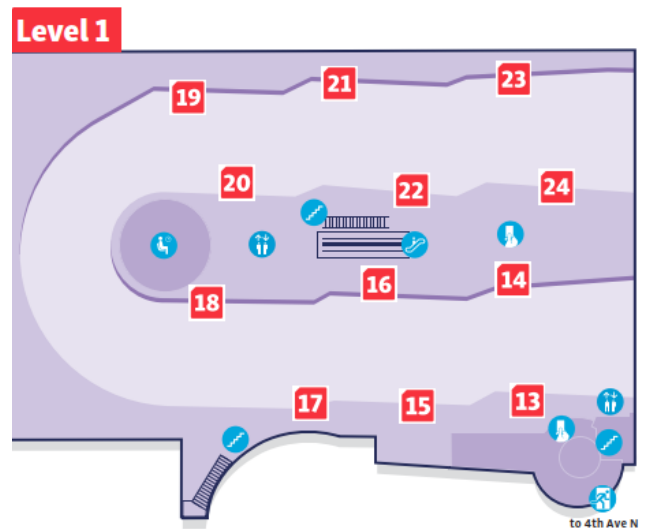
Parking Garage

Fully-enclosed transit centers are rare, partly because of the costs associated with ventilation. However, enclosed transit centers can also be incorporated into a multi-use structure, such as Music City Central in Nashville, Tennessee (Figure 5-2). This \$53.6 million multi-level transit facility is part of a major parking garage in the CBD, near the state capitol. Federal funds comprised 80 percent of the project budget.

FIGURE 5-2: MUSIC CITY CENTRAL TRANSIT CENTER, NASHVILLE



Source: WeGo Public Transit, WSP USA

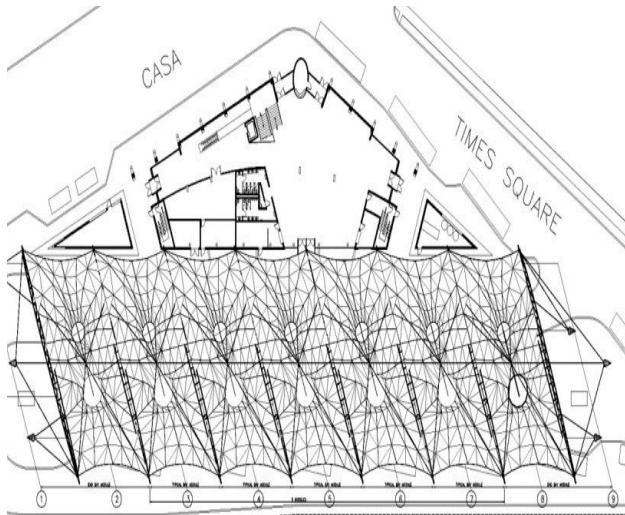


Nashville's Metropolitan Transit Authority (MTA, now branded as WeGo Public Transit) developed Music City Central, which opened in 2008. It occupies an entire city block. The facility is the hub of 38 of the system's 46 of the system's bus routes and serves up to 20,000 passengers each weekday with buses stopping at 24 bus bays, which are evenly divided between two levels. Music City Central includes enclosed and climate-controlled waiting rooms, a staffed information and sales booth, restrooms, and a small coffee shop.

Partly Enclosed / Off-Street

Transit centers can include a mix of enclosed and open-air spaces, such as the Rosa Parks Transit Center in downtown Detroit, Michigan (Figure 5-3). The \$22.5 million, 25,700 sq. ft. facility opened in 2009. Situated on a triangular property, it includes 15 bus bays while a two-story, fully enclosed and climate-controlled building houses a large waiting area with seating, restroom, a police substation, and a restaurant located on the second level. A tent-like canopy structure covers the outdoor passenger platform and most of the sawtooth bus bays. In addition to providing overhead protection from inclement weather and shade in hot, sunny weather, the canopy provides a dynamic landmark for the Detroit Department of Transportation (DDOT) bus system as well as Detroit's downtown district. The triangular site is adjacent to Detroit's elevated Downtown People Mover line.

FIGURE 5-3: ROSA PARKS TRANSIT CENTER, DETROIT



Source: Detroit Department of Transportation



Source: WSP USA Inc.



Source: WSP USA Inc.



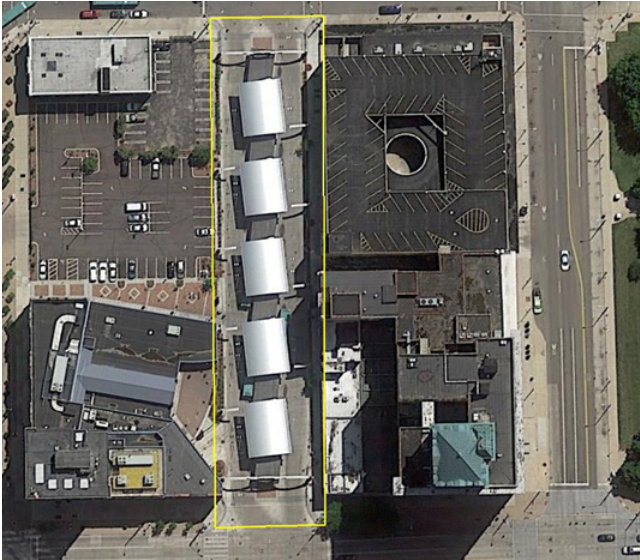
Source: WSP USA Inc.

The unique layout and design of the Rosa Parks facility does not lend itself wholly to any of the sites under consideration for a downtown facility in New Orleans; however, individual elements such as the canopy structure and center island platform have applicability to the sites that involve use of neutral grounds as well the site adjacent to Duncan Plaza.

Partly Enclosed / Mid-Block

Large open sites in CBD's are not always available for use as a transit center. In some cases, portions of a block can be secured and provide enough capacity and efficient operations. An example of a mid-block transit center is Wright Stop Plaza in Dayton, Ohio (Figure 5-4) which opened in 2009. It replaced a series of on-street bus stops that had created overcrowded conditions on sidewalks and interfered with street-facing businesses.

FIGURE 5-4: WRIGHT STOP PLAZA TRANSIT CENTER, DAYTON



Source: Greater Dayton Regional Transit Authority, Google Earth

The transit center accommodates 12 bus bays, six in each direction, with a center platform for passengers. Canopies provide protection from the elements. All routes that serve downtown Dayton use the facility, including the Greater Dayton Transit Authority's electric trolleybuses. Dayton is only one of five U.S. cities that operates rubber-wheeled buses powered through overhead wires (catenary). The wires are accommodated in the facility. The site includes a 14-story, pre-World War I office building that was previously purchased by the Authority and renovated for its administrative offices. An indoor, climate-controlled room facing Wright Stop Plaza was included in the project. Elements of the layout and design features apply to the alternative sites considered for a downtown facility in New Orleans within the context of the neutral grounds.

Open-Air / Off-Street

Civic spaces can also function as transit centers, as is the case with Kennedy Plaza in Providence, Rhode Island (Figure 5-5). Formerly known as City Hall Park and Exchange Place, the Kennedy Plaza Transit Center is served by all buses operated by the Rhode Island Public Transit Authority (RIPTA) that serve the CBD. The site has served as a transportation the 19th century but was not converted into a full-scale transit center until 2002, when the \$12 million project was built.

FIGURE 5-5: KENNEDY PLAZA TRANSIT CENTER, PROVIDENCE



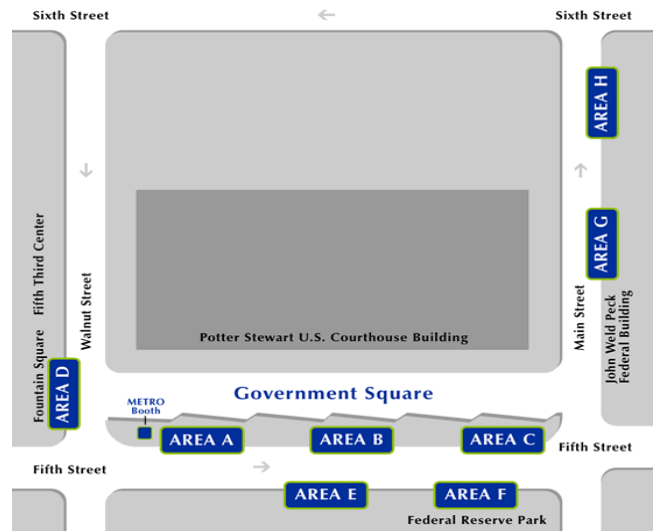
Sources: Rhode Island Public Transit Authority, Providence Journal, Klopfer Martin

Kennedy Plaza comprises ten pull-through, curbside bus stops along the plaza area itself. The spacious central area accommodates an enclosed passenger terminal and waiting area along with a separate ticket sales building. Five additional bus stops are located around adjacent Burnside Park. With a budget of \$5 million, the facility was overhauled, modernized, and reopened in 2015. Large, partially-enclosed shelters were replaced with a more open design with glass panels for visibility and safety. The design and layout of Kennedy Plaza relates most closely to the site at Duncan Plaza, under consideration for a similar facility in downtown New Orleans.

Another example of a transit center occupying a civic space, but in a much more confined setting than in Providence, is the Government Square Transit Center in Cincinnati, Ohio. As in Providence, the site had served as a transit hub for several years before being redeveloped into a full-fledged transit center in the late 1970's. The pull-through layout of the 1970's iteration required passengers to cross in front of buses to make transfers, and the stainless steel-and-glass shelters provided limited visibility, prompting a \$12 million redesign and reconstruction. The new facility (Figure 5-6) opened in 2005.

The facility is located along Fifth Street, which is one-way in the eastbound direction. The current facility consists of six off-street sawtooth bus bays. A passing lane allows buses to enter and exit their assigned bus bays without having to wait for the bus in front of them to clear and a passing lanes that operate in the eastbound direction only with the surrounding one-way street pattern. Passenger waiting space is shared with the sidewalk but includes three large shelters with cable-supported canopies. A small information and ticket sales booth is located at the western end of the facility. Five additional on-street, pull-through stops are located on surrounding streets, along with two streetcar stops. The layout of Government Square potentially applies to the potential sites in downtown New Orleans located within neutral grounds, such as Basin and Rampart streets.

FIGURE 5-6: GOVERNMENT SQUARE TRANSIT CENTER, CINCINNATI



Source: Southwest Ohio Regional Transit Authority, MSA Architects

On-Street Curbside

Like New Orleans, many downtown areas across the U.S. lack a specially-created transit center or facility and rely on a network of traditional, on-street bus stops. Some cities, however, have organized and enhanced some of their downtown stops into transit center facilities that involve curbside, pull-through bus stops on streets that remain open to general traffic. One example is the Central Campus Transit Center in Ann Arbor, Michigan (Figure 5-7). Located along a one block stretch of University Avenue, which runs through the campus of the University of Michigan, the facility consists of two shelters, one in each direction. Bus stops are pull-through along a cutout alongside general traffic lanes. As a result, there is no conflict between cars and buses, although buses must merge into the general traffic lane as they pull out of their stop.

FIGURE 5-7: CENTRAL CAMPUS TRANSIT CENTER, ANN ARBOR



Sources: *The Michigan Daily*, annarbor.com, HRC, Google Earth



The \$4.5 million transit center opened in 2012. It is served by the UM transit system and the Ann Arbor Area Transit Authority. The cable-supported shelters feature seating and real-time information displays. The westbound shelter is 80 feet long; the length of the eastbound shelter is 160 feet. The transit center accommodates 12 bus bays, six in each direction, with a center platform for passengers. Canopies provide protection from the elements. The layout of the Ann Arbor facility has potential application to sites along Canal Street under consideration for downtown New Orleans.

Center Median

Some of the neutral grounds in New Orleans - such as Canal Street and St. Charles Avenue, a portion of the Canal Boulevard neutral ground north of City Park Avenue, and the location of the new Cemeteries Transit Center - are used for transit. In other cities across the U.S., the use of medians for transit centers is relatively uncommon. One example is the Bellaire Transit Center in Houston, Texas. It is one of 21 transit centers located throughout the Houston METRO service area. The Bellaire facility occupies a 450-ft length of the Bellaire Boulevard median (Figure 5-8). While the median along most of Bellaire Boulevard is about 20 ft. wide, it widens to about 120 ft. for a three-block section, one of which was allocated for use as a transit center. The wide median allowed the design of the transit center to enable buses to enter and exit from both directions, maximizing operational flexibility.

FIGURE 5-8: BELLAIRE TRANSIT CENTER, HOUSTON



Source: Google Earth

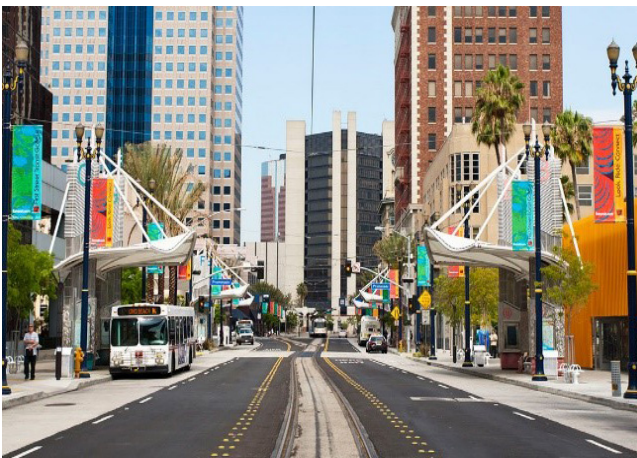


Transit Mall

Transit malls, consisting of streets that are converted to exclusive or near-exclusive transit use, have waned in popularity after an initial flurry of projects developed in the 1970's and 1980's. Chicago's State Street Transit Mall, for example, closed several blocks of the city's primary downtown retail street to all but bus and pedestrian traffic in 1979 but was re-opened to automotive traffic in 1996. However, several transit malls across the U.S. remain, and several have undergone redesigns and alterations since, such as Nicollet Mall in downtown Minneapolis and the 16th Street Mall in downtown Denver. These transit malls serve as the focal point of transit service in their respective cities, both as a primary downtown stop and system-wide transfer point.

One example of a thriving transit-only street is the Long Beach Transit Mall in Long Beach, California near Los Angeles. The 3-block mall (Figure 5-9) opened in 1990; in 2010, it underwent a \$7 million upgrade. The mall is served by Long Beach Transit buses and LA Metro's A Line light rail line. Buses operate along two lanes including curbside, pull-through bus stops while the light rail line operates in the center of the street. Eight large shelters – four on either side of the mall – feature broad, cable-supported fabric canopies. The shelters include seating, lighting, and real-time information displays. Elements of the Long Beach Mall has potential application to the site on Rampart street under consideration for downtown New Orleans.

FIGURE 5-9: TRANSIT MALL, LONG BEACH



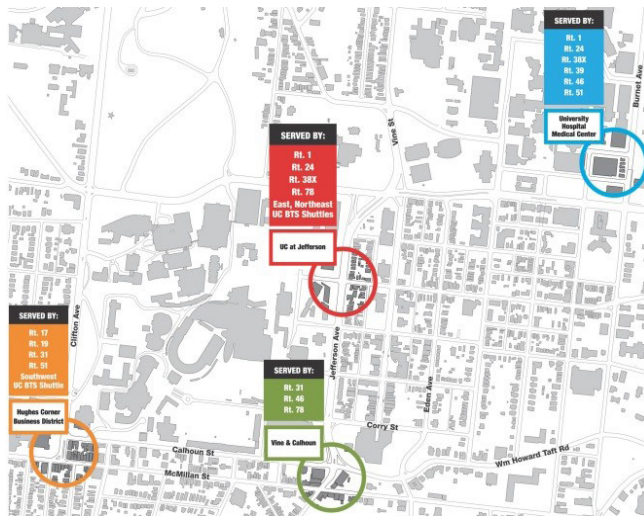
Source: Google Earth, MIG, Inc.

Transit District

Rather than focusing bus service and transfers at a single location, some cities have opted to designate a much larger area as a “transit district” with a unified and highly identifiable network of stops with upgraded amenities and a strong, consistent visual look. One example is the Uptown Transit District in Cincinnati, Ohio. The Southwest Ohio Regional Transit Authority (SORTA) initially sought a single, consolidated facility, similar to its downtown Government Square Transit Center, for Uptown- the city’s second largest employment and activity center with over 50,000 jobs (primarily medical) and over university students. A feasibility study in 2011 determined that a single site would result in unacceptable out-of-direction and costly realignments of several bus routes. Instead, a transit district concept was developed.

At a cost of \$6.9 million, the Uptown Transit District (Figure 5-10) consists of four high ridership bus stop locations and the placement of 13 individual, custom-designed shelters with a consistent design, profile, and array of amenities that includes real time information panels, kiosks, benches, lighting, and ticket vending machines.

FIGURE 5-10: UPTOWN TRANSIT DISTRICT, CINCINNATI



Sources: Southwest Ohio Regional Transit Authority, MSA Architects, Soapbox Cincinnati, Cincinnati Refined

5.2 FEATURES

The features, or elements, of a transit center can vary widely. At a minimum they must be able to accommodate buses - sometimes of varying type and length – and provide waiting and boarding areas for passengers. A wide array of elements is available for consideration to enhance operations and passenger comfort and convenience as well as complement or improve the surrounding environment.

Bus Bays

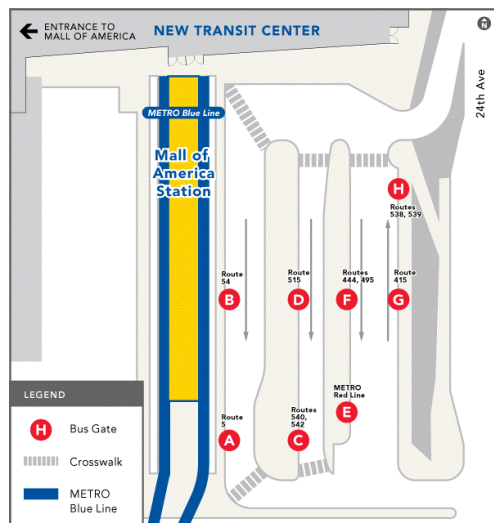
Bus bays, or stops, must provide easy access for passengers to and from buses while allowing buses to efficiently enter and leave the transit center. Configurations include:

Pull-through: On-street bus stops are typically designed for buses to pull in to the curb and then pull out back into traffic. This configuration works well for a single bus as long as there are no obstructions behind or in front of the bus to allow it to reach the curb without jutting into traffic or having to wait for a parked vehicle to move before it can enter or leave the stop.

Pull-through configurations can work in a transit centers accommodating several buses. An advantage is that the width of the travel and bus stop lanes is generally the same as a city street, at about 24 feet (12 feet for each lane). However, this configuration requires extra length to allow buses to pull in and pull out without having to wait for nearby buses to move out first. Pull-through configurations do not typically lend themselves to designated specific bus bays for individual routes.



FIGURE 5-11: PULL-THROUGH BUS BAY CONFIGURATION



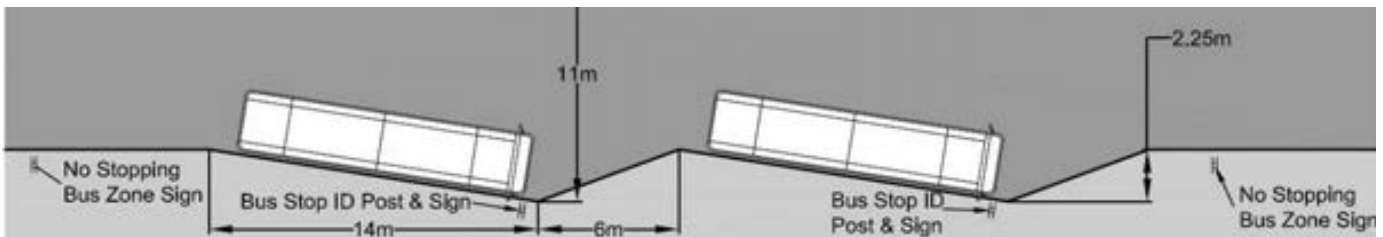
Source: Mall of American Transit Center, Minneapolis Source: Metro Transit

Sawtooth: Partly angled bays are described as “sawtooth” for their shape. Sawtooth bays can work in on-street environments with generous lane width but are more commonly found in off-street transit centers. The pull-in movement is straightforward; the pull-out movement requires operators to swing the bus to the left before straightening out and proceeding out of the facility. Buses do not have to back up to leave the bay.

The primary advantage of the sawtooth configuration is that it allows buses to enter and exit their bus bay with no interference or time delay from waiting for other buses to enter or exit. The configuration also allows bays to be designated for specific routes, so passengers have no doubt where to board their bus. Bollards are typically placed at the head or the tail of the sawtooth bay, opposite the front end of the bus, to enhance safety. Sawtooth bays must be designed for the length of the bus serving it; 60-foot articulated buses need a much longer bay than a standard 40-foot bus.



FIGURE 5-12: SAWTOOTH BUS BAY CONFIGURATION

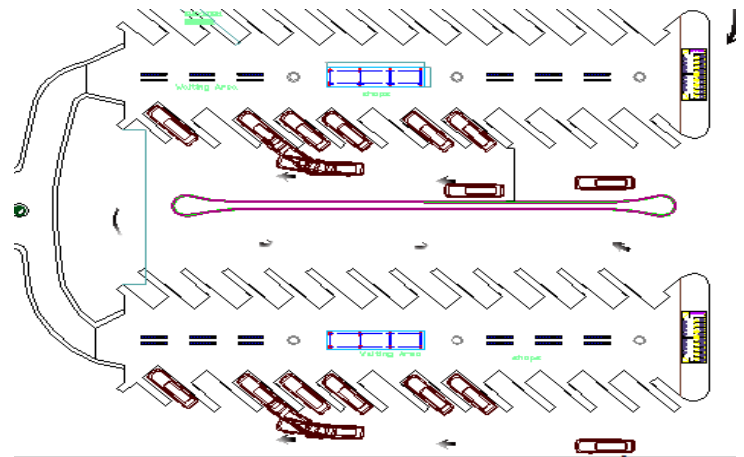


Source: BC Transit

Angled: Common in intercity bus terminals and in some urban transit centers, angled bays can accommodate more buses along a passenger platform than pull-through and sawtooth configurations. As a result, passengers have a shorter walk between buses. However, angled configurations require very wide bus lanes; to leave their bay and exit the facility, buses must first back up. This requires a large area to accommodate bus movements. It can also be a safety issue, as buses back up with limited visibility when adjacent bays are occupied. Supervisors are sometime employed to direct buses; audible signals are used, and can cause a noise issue to closely adjacent, non-transit land uses. As with sawtooth bays, bollards and/or railings are typically placed at the head of the bay for safety purposes.



FIGURE 5-13: ANGLED BUS BAY CONFIGURATION



Source: Cadbull.com

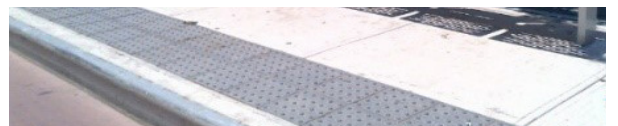
Platforms

Passenger waiting areas, often called “platforms,” are located along the edges and/or in center of transit centers.

Standard: Platforms are typically six inches above the surface of the bus bays. Accounting for water runoff requirements in unenclosed facilities, platforms are generally level, accommodating wheelchair lifts and ramps.

Raised: Less common than standard height platforms, raised platforms are 14-15 inches above bus bays, allowing for level or near level boarding. Raised platforms are often used to accommodate Bus Rapid Transit (BRT) vehicles, eliminating the need for passengers to negotiate steps and potentially eliminate the need for wheelchair lifts and ramps. Level and near level boarding requires precision docking to minimize the gap between the platform and bus.

Tactile Warning Strips: Warning strips composed of truncated domes or similar treatment provide a visual and tactile warning for passengers that there is a change in height between platform and bus bay.



Bollards/Railings: Physical barriers such as bollards and railings can be employed to help separate passengers from buses and provide a measure of safety where raised platforms are used.

ShelterS

A wide range of shelter options is available that respond to climate, capacity, costs and available funding, local conditions and preferences, and site.

Enclosed: Large transit centers can be enclosed to include roof structures that span the entire facility, providing climate protection for passengers, buses, and other functions that may be accommodated in the facility. Solid walls line at least two sides of the facility, providing additional weather protection. Enclosed transit centers can fully enclosed or be left open at one or two sides to allow buses to enter and exit unimpeded and minimize the need for mechanical ventilation.



Partially Enclosed: Roof structures are used to cover most or all of the bus bays, passenger waiting areas and other transit center features; otherwise, the facility is left open on the side. Tensile structures can be used as canopies over the center. Mechanical ventilation is unnecessary. Windbreaks may be used at passenger waiting areas to provide additional weather protection.

Individual Shelters/Open Air: Smaller-scale shelters can be placed at bus bays and stops to provide a measure of protection from the elements in transit centers that are otherwise open-air facilities. Shelters can be “stock,” off-the-shelf units, customized from stock units, or designed and fabricated specifically for the transit center.



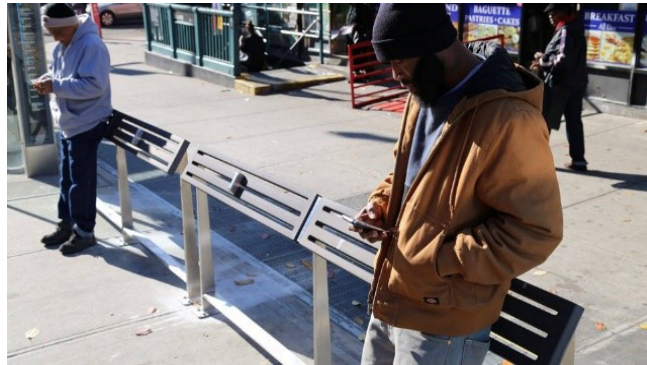
Lighting

Lighting is important not only for visibility at night, but to enhance safety and provide an attractive appearance that enhances the surrounding area.



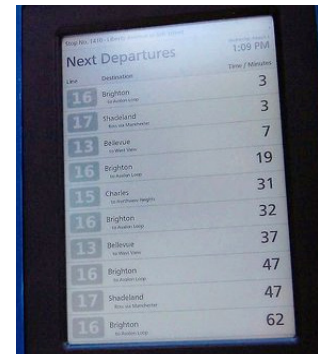
Seating

Seating is an important amenity at transit centers and bus stops, especially at locations where riders wait more than a few minutes to make a transfer. Seating can take many forms, ranging from benches with backs to leaning rails.



Passenger Information

Basic information typically used in transit centers includes, at a minimum, designation of routes, by number and name, at their assigned bay or stop location. Additional information can include scheduled arrival and departure times, real-time arrival and departure times, wayfinding within and around the facility, fares, and special announcements. The use of electronic real-time information displays has grown substantially in recent years.



Fare Sales

As transit systems across the U.S. are increasingly using off-board pre-payment options, ticket vending machines are becoming common features at transit centers and major stops, providing a convenient option for riders and the opportunity for the transit agency to reduce costs by eliminating the need for a staffed ticket and pass sales outlet. Online and personal device pre-payment options are also fast evolving and can bypass or complement the use of fare machines.



Safety Features

In addition to passenger comfort and convenience, safety is an important consideration for transit center development and operation. The design of the facility should incorporate best practices of Crime Prevention Through Environmental Design (CPTED). According to the American Public Transportation Association (APTA), CPTED is the application of designing safety and security into the natural environment of a specific area.¹ Specifically, CPTED concepts and strategies use the three interrelated principles of natural surveillance, natural access and territoriality, plus activity support and maintenance.

There also may be the need to supplement CPTED with standard safety features and programs such as security cameras, emergency call boxes, and a staffed security presence.



Restrooms

Restrooms are often a common request of transit riders during the transit center design process. They can be problematic in terms of maintenance and safety, however.

Bicycle and First Mile/Last Mile Accommodation

A transit agency can broaden access to its system by providing accommodations for alternative modes such as bicycling, such as bike racks or bike share facilities. Depending on available space, local policies, and cooperative relationships, car share and transportation network companies such as Uber and Lyft can also be accommodated by designating lanes and stops for this use.

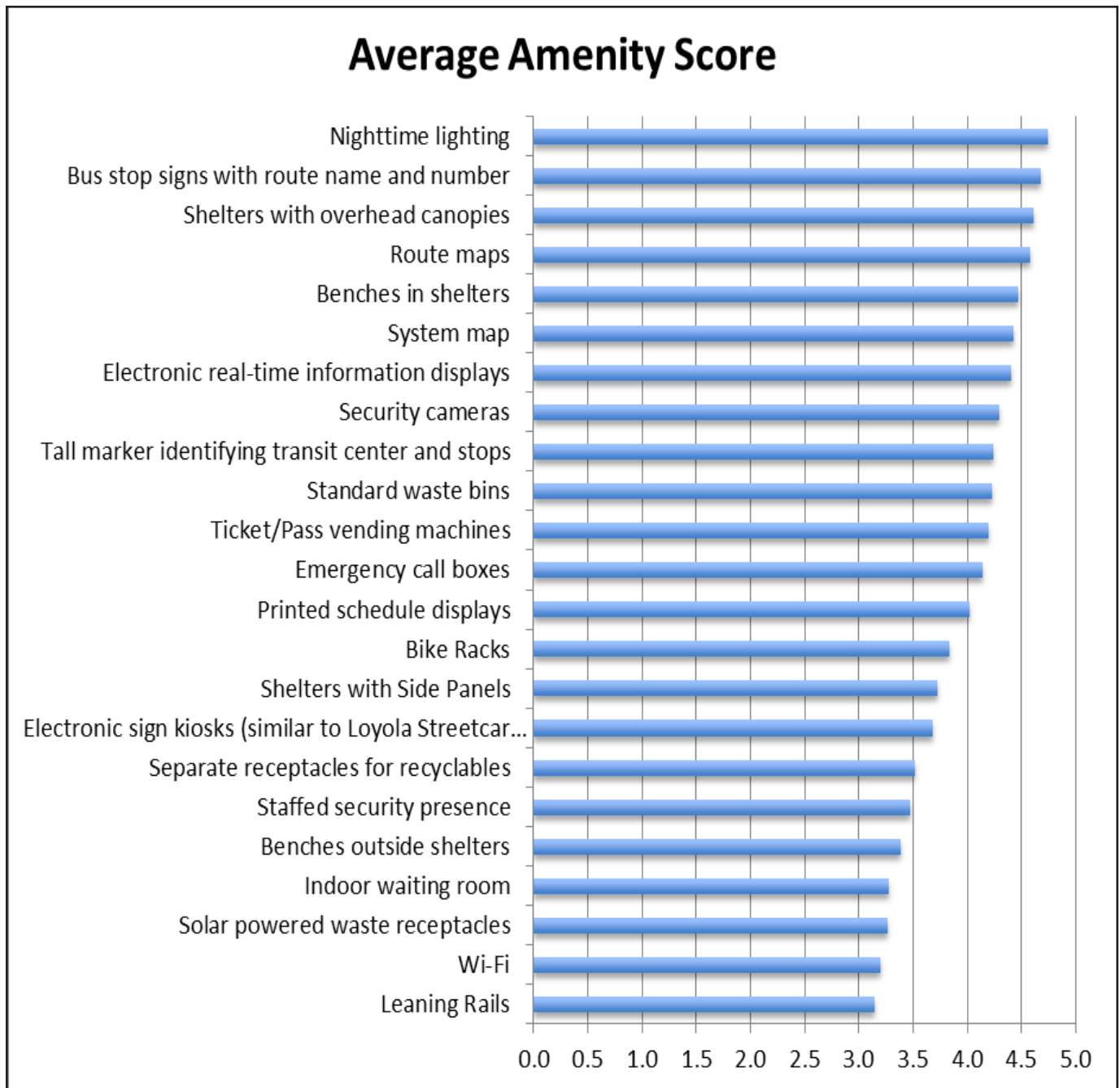


¹ APTA SS-SIS-RP-007-10, Crime Prevention Through Environmental Design (CPTED) for Transit Facilities, American Public Transportation Association, June 24, 2019

5.3 COMMUNITY PREFERENCES

At the various public meetings held during the course of the study, attendees were asked to rank, on a scale of 1 to 5 (with 5 being the most desired amenity), an array of potential transit center features and amenities in order of importance. The results are summarized in Figure 5-14. Lighting, overhead protection from the elements, seating, information, and security features were among the top-rated preferences.

FIGURE 5-14: AVERAGE AMENITY PREFERENCE SCORE



6 Screening Process

This chapter describes the process used to initially determine the Universe of Alternatives – the locations that appear to be situated and located to accommodate a transit facility in or near downtown New Orleans – and the process used to narrow down those options. The process was designed to culminate in the identification of a Locally Preferred Alternative (LPA) that could then enter a more advance stage of development, starting with an environmental analysis, more detailed design and engineering, and a refined cost estimate.

Across the three steps in identifying and narrowing down the alternatives, the initial criteria was broad in scope to allow for the maximum number of sites for consideration. Tier 1 screening applied a set of criteria that were relatively “high level” in nature; that is, qualitative rather than quantitative. While quantitative criteria were not used in Tier 1, the screening process employed 18 individual criteria, which were scored on a scale of 1-5. RTA staff expressed its preference that the number of sites advanced to Tier 2 screening be narrowed to four.

The resulting four sites emerging from Tier 1 screening, therefore, allowed for a more detailed and quantifiable scoring.

6.1 TIER 1 SCREENING PROCESS

The project team met on May 27, 2015 to identify a “universe of alternatives” of potential primary and secondary/satellite sites. Primary sites were not previously vetted but were determined by the team to be able to accommodate most RTA routes that serve downtown. The project team determined that a set of secondary, or satellite, sites, should also be examined due to the limited number of large, open locations for primary sites and concerns about lengthy and out-of-direction realignments of some routes from existing terminus locations to a potential primary site. These sites could be used to supplement a primary site. In addition, potential secondary sites may also have a unique, discreet function beyond consolidating transfer activity in the CBD.

Site identification criteria were developed by the project team, as shown in Table 6-1.

TABLE 6-1: SITE IDENTIFICATION CRITERIA - UNIVERSE OF ALTERNATIVES

SITES	CRITERIA
Primary	<ul style="list-style-type: none"> ■ Proximity to most bus routes and streetcar lines ■ Sufficient capacity to accommodate most bus routes and attendant passenger facilities and amenities ■ Reasonable operational usability that does not require massive routing changes and significant increases in bus route operating costs
Secondary/Satellite	<ul style="list-style-type: none"> ■ Provide supplemental capacity if the preferred primary site cannot – or should not – accommodate all routes that serve the CBD ■ Avoid lengthy alignment changes that would represent a significant increase to passenger travel time and operating cost ■ Capture transfers that do not need to occur in the CBD ■ Create multi-modal opportunities to existing RTA passenger facilities

As part of the May 27, 2015 identification of the Universe of Alternatives, Tier 1 evaluation criteria were established by the project team, as shown in Table 6-2:

TABLE 6-2: TIER 1 SCREENING CRITERIA

<ul style="list-style-type: none"> ■ Distance to Canal Street ■ Access to streetcar lines ■ Bus capacity- existing ■ Bus capacity- future ■ Ability to allow layover/recovery time ■ Rough order of magnitude estimated capital cost ■ Rough order of magnitude estimated operational cost ■ Time to implement ■ NEPA issues and concerns 	<ul style="list-style-type: none"> ■ Impact on traffic, parking and loading zones ■ Impacts to adjacent properties ■ Access to jobs ■ Compatibility with future economic growth of urban core ■ Opportunity for future economic development ■ Opportunity for iconic design ■ Opportunity to provide amenities ■ Safety and security ■ Site control (availability)
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The intent of the process was to narrow down the universe of sites to four primary sites and four potential secondary/satellite sites.

For Tier 1 Screening, each criterion is numerically scored within a range of 1 to 5:

- 1 signifies that the alternative does not meet the criteria
- 5 signifies that the alternative fully meets the criteria

With 18 criteria, the highest possible score is 90.

6.2 TIER 2 SCREENING PROCESS

A more detailed screening process was used in Tier 2. This was designed to provide the essential information necessary to select the LPA. A series of criteria were developed as shown in Table 6-3.

TABLE 6-3: TIER 2 SCREENING CRITERIA

FACILITY DESIGN: RIDER EXPERIENCE	FACILITY DESIGN: COMMUNITY EXPERIENCE	LOCATION	IMPLEMENTATION	SERVICE IMPACTS
<ul style="list-style-type: none"> ▪ Passenger waiting area size ▪ Ease of transferring ▪ Walk time to streetcars ▪ Convenient layout 	<ul style="list-style-type: none"> ▪ Iconic design potential ▪ Bicycle facilities and access ▪ Capacity for on-site transit oriented development ▪ Relative traffic impact ▪ Business visibility and access ▪ Net on-street parking change 	<ul style="list-style-type: none"> ▪ Visibility and activity ▪ Population in half-mile buffer ▪ Jobs in half-mile buffer 	<ul style="list-style-type: none"> ▪ Ease of construction ▪ Preliminary estimate of probable capital cost 	<ul style="list-style-type: none"> ▪ Bus service impacts ▪ Capacity

As shown in Table 6-4, each of the five criteria are assigned a weighted value, based on the importance of the criterion as determined by the project team. The values for the criteria total 100%.

The project team determined that the most significant criterion is “Facility Design: Rider Experience,” which is therefore assigned a weighted value of 30%. The other four criteria have weighted values of 15% or 20%.

Each criterion is also broken down into 2-6 sub-criteria. This allows a more in-depth evaluation of specific components and impacts. For example, under the “Facility Design: Rider Experience” criterion, four sub-criteria allow scoring to more effectively judge separate aspects of the criterion, such as walk time to streetcars and convenience of the layout. The weighted value for the criterion is divided among the sub-criteria. The individual values for each sub-criterion equal to total value of the overall criterion.

The project team assigned a score for each sub-criterion within a range of 0 to 5:

- 0 signifies that the alternative does not meet the criteria
- 5 signifies that the alternative fully meets the criteria

TABLE 6-4: TIER 2 SCREENING CRITERIA AND WEIGHTED VALUES

CRITERIA	SUB CRITERIA	WEIGHTED VALUE	TOTAL WEIGHTED VALUE
Facility Design: Rider Experience	Passenger Waiting Area Size	5%	30%
	Ease of Transferring	6%	
	Walk Time to Streetcars	8%	
	Convenient Station Layout	11%	
Facility Design: Community Experience	Iconic Design Potential	3%	20%
	Bicycle Facilities and Access	3%	
	Capacity for On-site TOD	3%	
	Relative Traffic Impact	5%	
	Business Visibility and Access	3%	
	Net On-street Parking Change	3%	
Location	Visibility and Activity	7%	15%
	Population in Half-mile Buffer	3%	
	Jobs in Half-mile Buffer	5%	
Implementation	Ease of Construction	8%	15%
	Capital Cost	7%	
RTA Service Impacts	Bus Service Impacts	10%	20%
	Capacity	10%	
Total		100%	

7 Tier 1 Alternatives and Screening

7.1 TIER 1 ALTERNATIVES

The universe of alternatives comprised the Tier 1 alternatives (Figure 7-1) for subsequent screening and identification of the most promising locations, development of sketch layouts, and creation of potential routing plans. Table 7-1 summarizes why each site was considered for initial (Tier 1) screening.

FIGURE 7-1: TIER 1 ALTERNATIVES - LOCATION



- 1 Basin Street
- 2 Rampart Street
- 3 Rampart-Canal Four Corners
- 4A Canal Street-Rampart-Dauphine Curbside
- 4B Canal Street-Rampart-Dauphine Neutral Ground
- 5 Duncan Plaza
- 6 Union Passenger Terminal
- 7 Canal at Ferry Terminal
- 8 Clairborne-Canal-Tulane
- 9 Canal Street Lot at LaSalle
- 10 French Market
- 11 Galvez at Medical Center
- 12 Broad and Washington

TABLE 7-1: TIER 1 ALTERNATIVES - CHARACTERISTICS AND RATIONALE

SITE	CHARACTERISTICS	RATIONALE
PRIMARY SITES - ACCOMMODATING MOST OR ALL BUS ROUTES		
1. Basin Street	Off-street facility using neutral ground between Canal and Conti	<ul style="list-style-type: none"> ■ Centrally located, directly on Canal Streetcar ■ Sufficient area to accommodate several routes, but would require pedestrian crossings of streets ■ Likelihood of minimal route changes ■ Likelihood of minimal operating cost changes ■ Opportunity to create iconic facility
2. Rampart Street	Off-street facility using Rampart between Canal and Tulane, requiring near-exclusive use for buses on existing street and neutral ground	<ul style="list-style-type: none"> ■ Centrally located, directly on Canal Streetcar ■ Sufficient area to accommodate several routes, but would require pedestrian crossings of streets ■ Likelihood of minimal route changes ■ Likelihood of minimal operating costs ■ Opportunity to create iconic facility
3. Rampart Four Corners	On-street facility occupying curbside area of each block at the intersection of Canal and Rampart	<ul style="list-style-type: none"> ■ Centrally located, directly on Canal Streetcar ■ Sufficient area to accommodate several routes, but would require pedestrian crossings of streets ■ Likelihood of minimal route changes ■ Likelihood of minimal operating costs ■ Passenger amenities placed in existing pedestrian right-of-way
4A. Canal Street-Rampart-Dauphine Curbside	On-street facility occupying curbside area of 2-block segment of Canal Street (CBD side of street)	<ul style="list-style-type: none"> ■ Centrally located, directly on Canal Streetcar ■ Can accommodate several routes, but fewer than other primary sites. ■ Would require pedestrian crossings of streets ■ Likelihood of minimal route changes ■ Likelihood of minimal operating costs ■ Passenger amenities placed in existing pedestrian right-of-way
4B. Canal Street Neutral Ground	Partially off-street facility sharing portion of a 2-block section of neutral ground with Canal Streetcar (either CBD or French Quarter side of the neutral ground)	<ul style="list-style-type: none"> ■ Centrally located, directly on Canal Streetcar ■ Can accommodate several routes, but less than other primary sites. ■ Would require pedestrian crossings of streets ■ Likelihood of minimal route changes ■ Likelihood of minimal operating costs ■ Passenger amenities placed in existing pedestrian right-of-way
5. Duncan Plaza	Off-street facility using edges of existing park	<ul style="list-style-type: none"> ■ Sufficient capacity to accommodate several routes ■ Likelihood of moderate route changes ■ Likelihood of moderate operating cost changes ■ A few blocks but a relatively short walk from Canal Street

SITE	CHARACTERISTICS	RATIONALE
SECONDARY/SATELLITE SITES - LIMITED CAPACITY, SERVE PRIMARY SITE		
6. Union Passenger Terminal (UPT)	Off-street facility at Loyola/Rampart streetcar terminus	<ul style="list-style-type: none"> ▪ CBD-edge location but can serve as a multi-modal facility ▪ Existing passenger amenities can be replicated ▪ Can capture bus traffic from uptown and Westbank neighborhoods
7. Canal Ferry Terminal	On-street facility at foot of Canal adjacent to substation	<ul style="list-style-type: none"> ▪ CBD-edge location but can serve as a multi-modal facility ▪ Can capture some bus traffic from uptown and downriver neighborhoods and ferry transfers
8. Canal-Claiborne	Off-street facility on under-utilized land beneath Claiborne Expressway	<ul style="list-style-type: none"> ▪ CBD-edge location but can serve as a multi-modal facility ▪ Directly on Canal Streetcar ▪ Existing passenger amenities can be replicated ▪ Pivot point between CBD and new medical center district ▪ Can capture bus traffic from central area neighborhoods and New Orleans East
9. Canal Street Lot at LaSalle	Off-street facility on current surface parking lot	<ul style="list-style-type: none"> ▪ Directly on Canal Streetcar ▪ Likelihood of minimal route changes ▪ Likelihood of minimal operating costs ▪ Opportunity to provide passenger amenities
10. French Market	On-street or off-street facility in downriver corner of French Quarter	<ul style="list-style-type: none"> ▪ Directly on Riverfront Streetcar ▪ Can capture bus traffic from downriver neighborhoods
11. Galvez at Medical Center	On-street facility between Canal and Tulane	<ul style="list-style-type: none"> ▪ Provide a hub for transit service to new medical center district ▪ Directly on Canal Streetcar
12. Broad-Washington	On-street facility consisting of stops and shelters at the 4 corners of the intersection	<ul style="list-style-type: none"> ▪ Capture some transfer activity to major bus route (94 Broad) to shorten passenger trips by not having to travel out-of-direction to CBD and back

7.2 TIER 1 SCREENING

The results of the Tier 1 Screening process are shown in Table 7-2.

TABLE 7-2: TIER 1 SCREENING

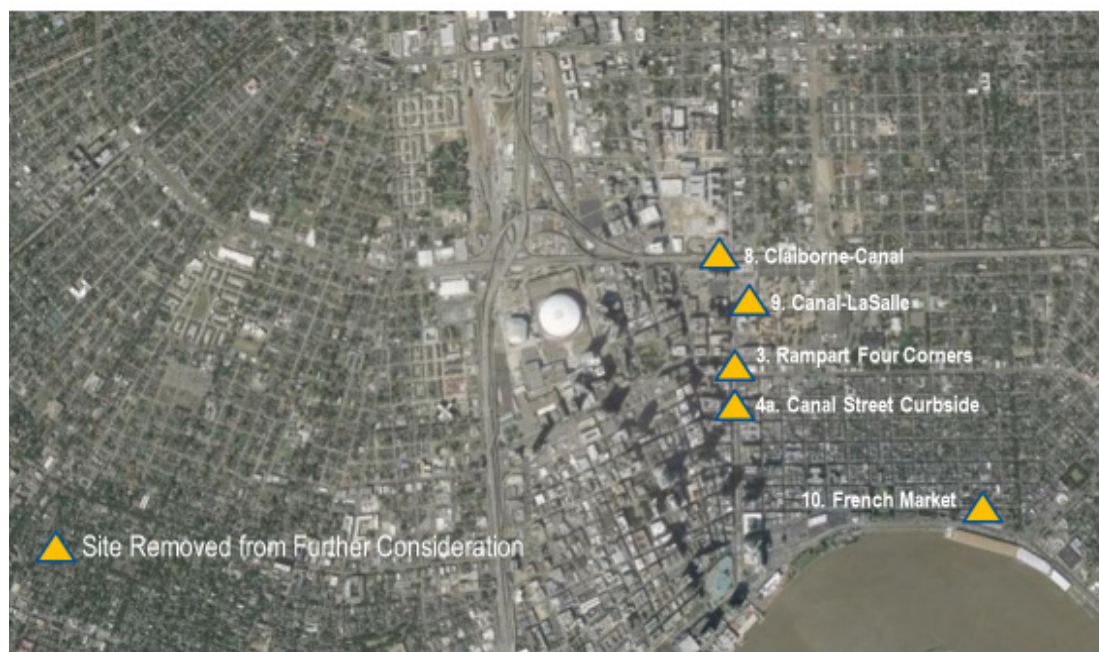
SITES	1	2	3	4A	4B	5	6	7	8	9	10	11	12
TIER 1 SCREENING RATING CRITERIA	Basin Street	Rampart Street	Rampart-Canal Four Corners	Canal Street: Rampart-Dauphine Curbside	Canal Street: Rampart-Dauphine Neutral Ground	Duncan Plaza	Union Passenger Terminal (UPT)	Canal at Ferry Terminal	Canal-Claiborne	Canal Street Lot at LaSalle	French Market	Galvez at Medical Center	Broad-Washington
Total (max. score = 90)	70	72	64	64	66	68	63	58	57	56	47	56	49
Ranking	2	1	5	5	4	3	6	7	8	9	11	9	10
Distance to Canal Street	4	5	5	5	5	3	2	5	4	5	2	4	1
Access to streetcar lines	5	5	5	4	4	3	3	5	4	4	3	4	1
Bus capacity-existing	5	5	5	5	4	5	2	3	5	4	5	5	1
Bus capacity-future	5	4	3	4	4	3	2	1	1	5	1	3	1
Ability to allow layover/recovery time	5	5	3	3	3	5	5	4	5	5	3	3	5
Estimated capital cost	2	2	4	4	3	2	5	3	2	1	5	3	5
Estimated system operational cost	5	5	4	4	4	3	2	2	2	3	2	2	1
Time to implement	2	3	4	4	3	2	5	4	2	1	4	3	5
NEPA issues and concerns	1	3	5	5	4	4	5	4	4	3	2	3	5
Impact on traffic, parking, loading zones	4	3	2	1	3	5	4	2	3	4	1	3	3
Impacts to adjacent properties	4	4	2	2	4	4	4	4	4	1	3	3	3
Access to jobs	3	4	4	5	5	3	2	2	2	3	2	2	1
Compatibility with economic growth of urban core	4	4	2	2	4	4	3	3	4	3	2	2	1
Opportunity for future economic development	2	3	1	1	2	5	4	2	2	4	1	1	3
Opportunity for iconic design	5	4	3	3	2	5	3	3	2	3	2	4	2
Opportunity to provide amenities	5	4	2	2	2	5	4	2	4	4	1	2	4
Safety and security	4	4	5	5	5	3	3	4	3	2	3	4	2
Site control	5	5	5	5	5	4	5	5	4	1	5	5	5

Five sites were removed from further consideration as a result of Tier 1 screening. These sites are listed and described in Table 7-3; their locations are shown in Figure 7-2. It was determined that these sites are either too small, too removed from Canal Street, privately owned, and/or problematic in terms of conflicts with streetcar operations and traffic to effectively serve as either a primary or secondary transit center.

TABLE 7-3: TIER 1 SITES REMOVED FROM FURTHER CONSIDERATION

SITES	RATIONALE
Site 3. Rampart Four Corners	<ul style="list-style-type: none"> ■ Heavy congestion ■ Insufficient capacity ■ No layover opportunity
Site 4a. Canal-Rampart-Dauphine Curbside	<ul style="list-style-type: none"> ■ Heavy congestion ■ Interference with current curbside uses ■ No layover opportunity
Site 8. Canal-Claiborne Underpass	<ul style="list-style-type: none"> ■ Columns restrict ability to accommodate buses ■ Heavy and high-speed traffic on Claiborne ■ Not central to the CBD core ■ Would add to RTA system operating costs
Site 9. Canal Street Lot at LaSalle	<ul style="list-style-type: none"> ■ Uncertain availability and environmental issues ■ Not central to CBD core
Site 10. French Market	<ul style="list-style-type: none"> ■ Removed from CBD and RTA core ■ No access to Canal Streetcar spine ■ Heavy French Quarter traffic

FIGURE 7-2: TIER 1 SITE REMOVED FROM FURTHER CONSIDERATION



The remaining eight sites were advanced to Tier 2 Screening, as listed on and described in Table 7-4. Their locations are shown in Figure 7-3. Four of the sites were determined to be suitable as a primary site based on their size and location. The other four sites are smaller but exhibit potential for consideration as a secondary or satellite facility to supplement a primary site.

TABLE 7-4: TIER 1 SCREENING - SITES ADVANCED TO TIER 2 SCREENING

PRIMARY SITES	
Site 1. Basin Street	<ul style="list-style-type: none"> Central location Sufficient capacity Streetcar hub
Site 2. Rampart Street	<ul style="list-style-type: none"> Central location Sufficient capacity Streetcar hub
Site 4B. Canal Street Neutral Ground	<ul style="list-style-type: none"> Central location RTA-controlled right-of-way Streetcar hub
Site 5. Duncan Plaza	<ul style="list-style-type: none"> Sufficient capacity Minimal impact on traffic Near CBD office core
SECONDARY/SATELLITE SITES	
Site 6. Union Passenger Terminal (UPT)	<ul style="list-style-type: none"> Existing multi-modal facility and infrastructure
Site 7. Canal-Ferry Terminal	<ul style="list-style-type: none"> Adjacent multi-modal facility and infrastructure Streetcar hub
Site 11. Galvez at Medical Center	<ul style="list-style-type: none"> Major and growing employment area Sufficient on-street capacity
Site 12. Broad-Washington	<ul style="list-style-type: none"> Major local/neighborhood transfer point Potential to divert some transfer activity out of the CBD

FIGURE 7-3: TIER 1 SITES ADVANCED TO TIER 2 SCREENING



8 Tier 1 Primary Sites - Initial Layout Concepts

A two-step process was used for Tier 2 screening:

1. Sketch layouts for the primary sites (Section 8.2) sites were developed to determine how a transit center can be accommodated and how it would impact adjacent traffic and surrounding land uses. As a result of this assessment, RTA and the project team determined that one of the sites should be dropped from further consideration (4b) and replaced it with a new alternative site (4c). This decision is explained in Section 8.2.
2. More refined layouts of the primary sites were developed to maximize their flexibility in terms of operations and interface with streetcar operations, traffic, and adjacent land uses (Section 8.2). In addition, sketch bus routing plans (Section 8.3) and estimates of probable capital costs (Section 8.4) were developed.

The Tier 2 screening is described in Section 8.5.

Sketch layouts for the secondary/satellite sites are presented in Section 8.6. No further refinement was conducted of the secondary/primary sites. They were not subjected to further screening; rather, they provide RTA with the opportunity to further develop one or more of these locations as necessary to supplement a primary site..

8.1 PRIMARY SITES - INITIAL CONCEPTUAL LAYOUTS

The location of the four primary sites advanced to Tier 2 screening are shown in Figure 8-1. Each location was subject to additional development in terms of sketch layouts to determine if how well they could accommodate a large amount of buses, interact with the Canal Streetcar lines, and impact existing traffic.

FIGURE 8.1: TIER 2 ALTERNATIVES – PRIMARY SITES



TABLE 8-1: TIER 2 PRIMARY SITE DESIGN PRINCIPLES AND FEATURES

DESIGN PRINCIPLES	DESIGN FEATURES
<ul style="list-style-type: none"> Ability to handle several bus routes Ability to handle high volumes of passengers Positive rider experience Passenger amenities including shelters Efficient bus movements Minimal/manageable traffic impacts Parking and business access Accommodation of transfers 	<ul style="list-style-type: none"> Most system transfers can be made at the facility Sawtooth bus bays Benches Shelters/canopies Lighting Signs and information Cameras, emergency phones, staffed security Driver layover and facility

Tier 2 Primary Site 1 - Basin Street

The Basin Street site, as shown in Figure 8-2, would occupy up to three blocks of the Basin Street neutral ground, from Canal Street to Conti Street. Basin Street was formerly a railroad right-of-way and has a history of being used for transportation. A Daniel Burnham-designed station headhouse formerly occupied the portion of the neutral ground between Canal and Iberville. The wide median and available right-of-way provide ample space in which to situate a transit center. The conceptual alignment preserves the Bolivar Monument and leaves this portion of the neutral ground unchanged. As a result, the western end of the facility would be one block from the Canal Street transit corridor, and the easternmost portion would be three blocks away.

Two layout concepts were developed (Figures 8-3 and 8-4): the first consisting of 12 pull-through lanes perpendicular to Basin, with buses entering and exiting each bus bay individually, along a two-block stretch; the second consisting of 15 sawtooth bus bays, eight in each direction and eight per block, with a center platform. Buses would enter and exit from at or near the cross streets- Conti, Bienville, and Iberville.

FIGURE 8-2: BASIN STREET



Source: Google Earth



Source: WSP USA Inc.



Former Burnham-designed train terminal.

Source: nutrias.org

FIGURE 8-3: BASIN STREET - PERPENDICULAR PULL-THROUGH BUS BAY CONCEPT

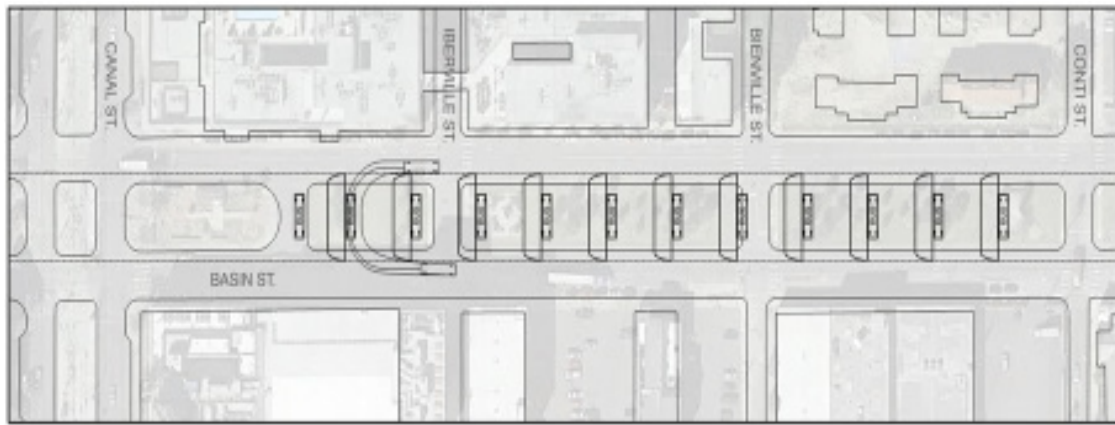
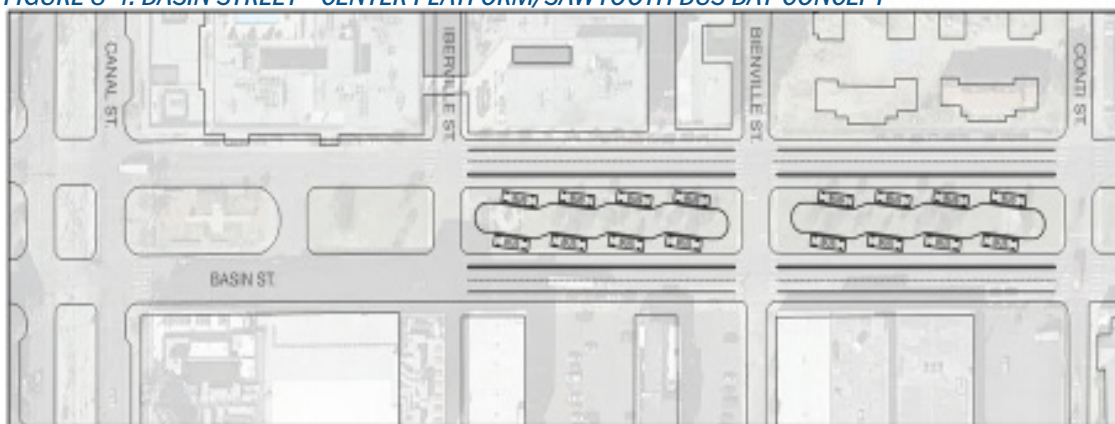


FIGURE 8-4: BASIN STREET - CENTER PLATFORM/SAWTOOTH BUS BAY CONCEPT



Tier 2 Primary Site 2 - Rampart Street

The Rampart Street site, as shown in Figure 8-5, consists of the block between Canal Street and Common Street, one block south of Basin Street/Elk Place. It was identified as a potential transit center site due to its sufficient size and proximity to Canal Street. A narrow neutral ground occupies the center of the street, which is flanked by various structures including a former theater, apartment and office buildings, small-scale retail, and surface parking lots.

Two layout concepts were developed (Figures 8-6 and 8-7): the first consisting of 14 sawtooth bus bays, seven in each direction, with a narrow center platform; the second consisting of 16 curbside bus stops, eight on each side of the street, with passenger waiting areas occupying existing sidewalk space. The neutral ground would be preserved in the second layout concept.

FIGURE 8-5: RAMPART STREET



Source: Google Earth



Looking west from Canal Street
Source: WSP USA Inc.



Looking east from Common Street
Source: WSP USA Inc.

FIGURE 8-6: RAMPART STREET - CENTER PLATFORM/SAWTOOTH BUS BAY CONCEPT

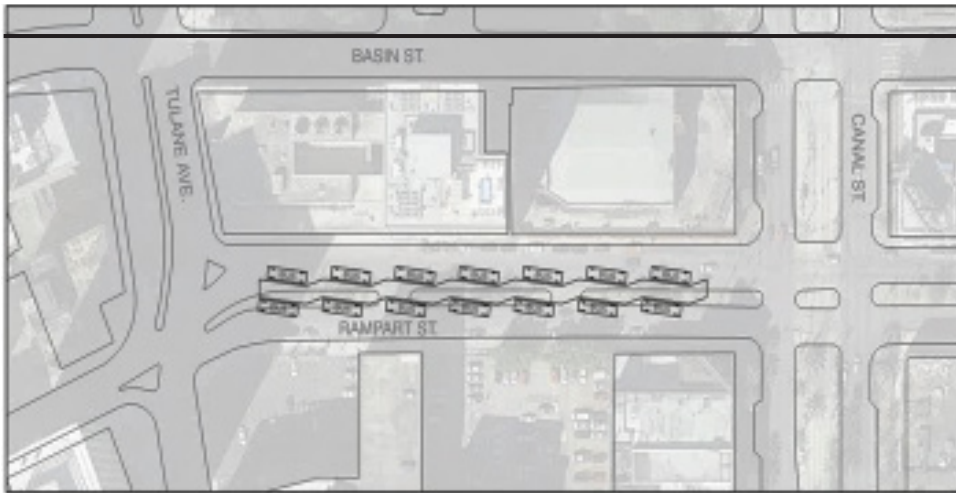
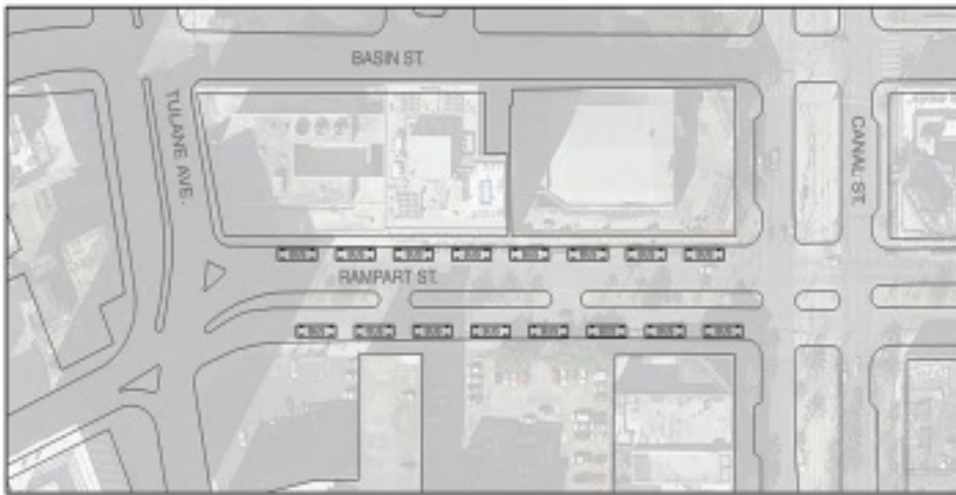


FIGURE 8-7: RAMPART STREET - CURBSIDE PULL-THROUGH BUS BAY CONCEPT



Tier 2 Primary Site 4B. Canal Street Neutral Ground

As shown in Figure 8-8, the Canal Street Neutral Ground site consists of a two-block segment between Rampart and Dauphine streets sharing the transitway with the Canal Streetcar lines shown in yellow. This site was identified as a potential transit center location due to its ability to accommodate several buses and direct bus-streetcar transfer opportunities. The layout concept (Figure 8-9) consists of eight pull-through stops between the streetcar tracks and neutral ground curb in the southbound (toward the river) direction, with four bus stops per block.

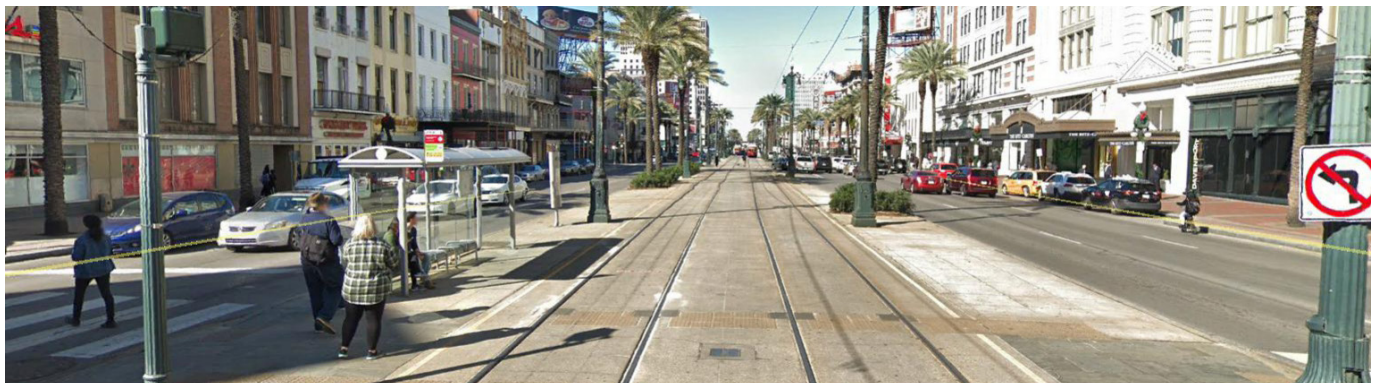
FIGURE 8-8: CANAL STREET NEUTRAL GROUND



Source: Google Earth



Source: Google Earth



View at Canal Street Neutral Ground from Dauphine Street
Source: Google Earth

FIGURE 8-9: CANAL STREET NEUTRAL GROUND - PULL-THROUGH BUS BAY CONCEPT



Tier 2 Primary Site 5 - Duncan Plaza

The Duncan Plaza site, as shown in Figure 8-10, occupies the space between the park area of Duncan Plaza and the walk of the parking garage that extends between Gravier and Perdido streets. It was identified as a potential transit center site due to its large size, its potential availability, and proximity to major employment sited in downtown. While this area is primarily grass, it is not formally part of Duncan Plaza itself. The layout concept (Figure 8-11) consists of 12 sawtooth bus bays, six in each direction, with a wide center platform. Buses can enter and exit via both Gravier and Perdido.

FIGURE 8-10: DUNCAN PLAZA



FIGURE 8-11: DUNCAN PLAZA - CENTER PLATFORM/SAWTOOTH BUS BAY CONCEPT



8.2 TIER 2 PRIMARY SITES - SITE AND LAYOUT CONCEPT REFINEMENTS

Following completion of the sketch layouts of the primary sites, the project team conducted an in-depth review and discussion of each. This review resulted in the determination that Primary Site 4b was flawed. Although it was ideally situated to facilitate seamless transferring between buses and streetcars, the placement of buses along the neutral ground within the streetcar right-of-way had the potential to cause conflicts between buses and streetcars and create potential safety issues for riders navigating the neutral ground to transfer between buses or between buses and streetcars.

At the same time, as part of the review of two of the other primary sites – 1 Basin Street and 2 Rampart Street – it was determined that a new “hybrid” site should replace Primary Site 4b. This hybrid site, identified as Primary Site 4c Rampart-Basin Hybrid, combines portions of Primary Sites 1 and 2 (Basin Street and Rampart Street).

FIGURE 8-12: TIER 1 SITES - REFINEMENT



Rampart, and Duncan Plaza alternatives were further refined and operating plans were developed for each. In the case of the Basin Street alternative, a three-block option, in addition to the two-block concept in Tier 1, was developed to expand capacity. At the same time, a center-island platform option was developed in addition to the original side platform configuration. The Duncan Plaza alternative was similarly expanded to increase capacity. The refined layouts are described on the following pages.

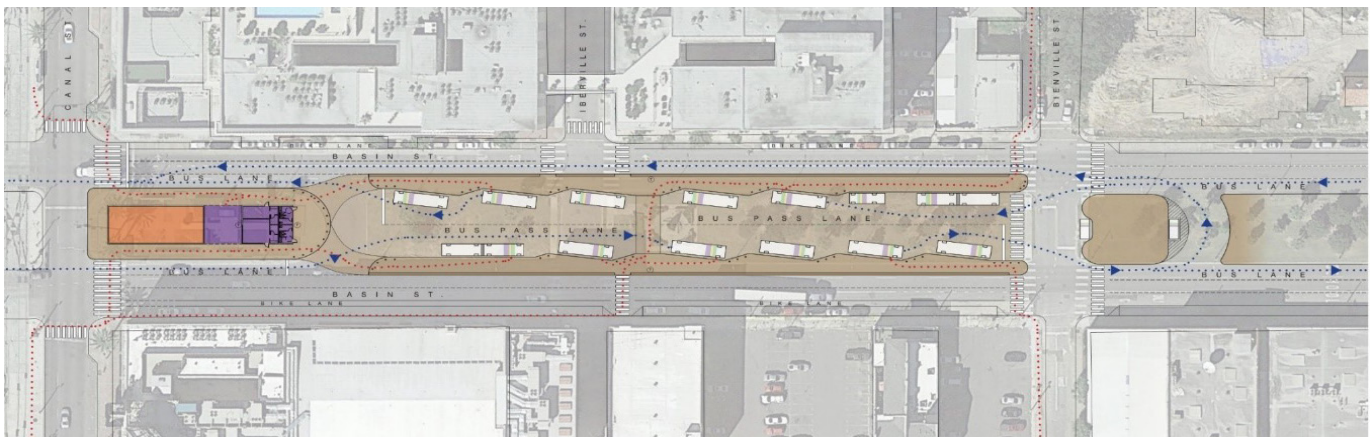
Primary Site 1 - Basin Street

As shown in Figure 8-13, a two-block facility with a flow-through, side-platform design (Option A) appears to provide sufficient space for buses to dock and pull out within the site and pass parked buses without conflicts. Buses are oriented in the proper directions and the bays appear to be more than sufficient to allow buses to pull in and out. The facility would remove from operation a traffic lane from Basin Street in each direction to provide additional space for the facility and a protected lane for buses to enter and exit traffic as they make their movements in and out of the facility.

Of concern is the impact of the bus movements on Iberville, and potential conflicts between autos and buses at that location. Closing Bienville to through auto traffic at that location would help avoid bus-auto conflicts.

Pedestrian movements are well-protected both within the facility and outside.

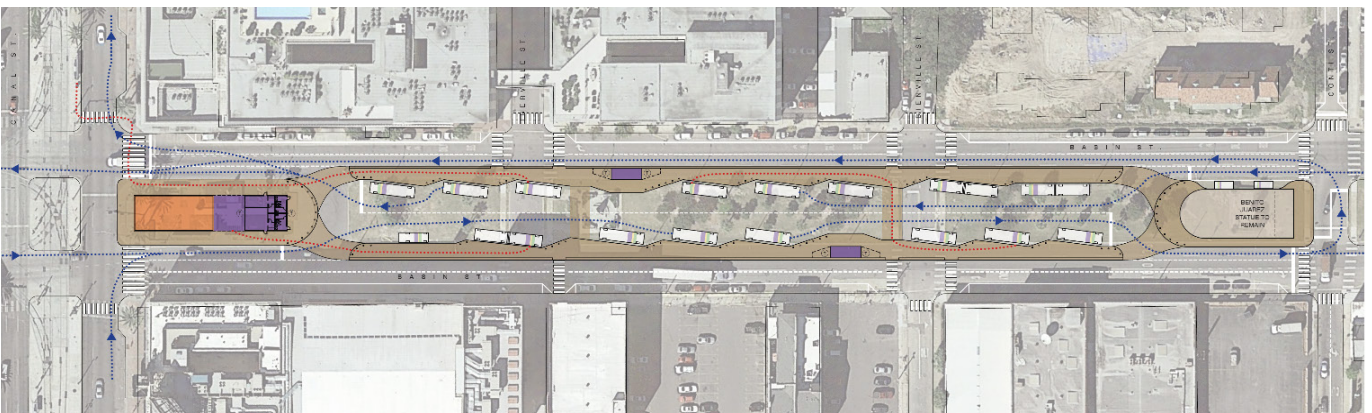
FIGURE 8-13: BASIN STREET LAYOUT CONCEPT REFINEMENT (OPTION A) - TWO-BLOCK, SIDE PLATFORMS FACILITY



Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

A three-block, side-platform version (Option B) is shown in Figure 8-14. The design is essentially the same as the two-block version (Option A) in that the aisles are wide enough to allow buses to pass in both directions. The three-block design has various advantages over the two-block design. The facility is larger, with more bus bays, offering RTA more operational flexibility. Potential traffic conflicts at Bienville Street in the two-block design are eliminated. Buses requiring a U-turn could make that movement in mixed traffic at Conti Street, which offers a wider turning radius.

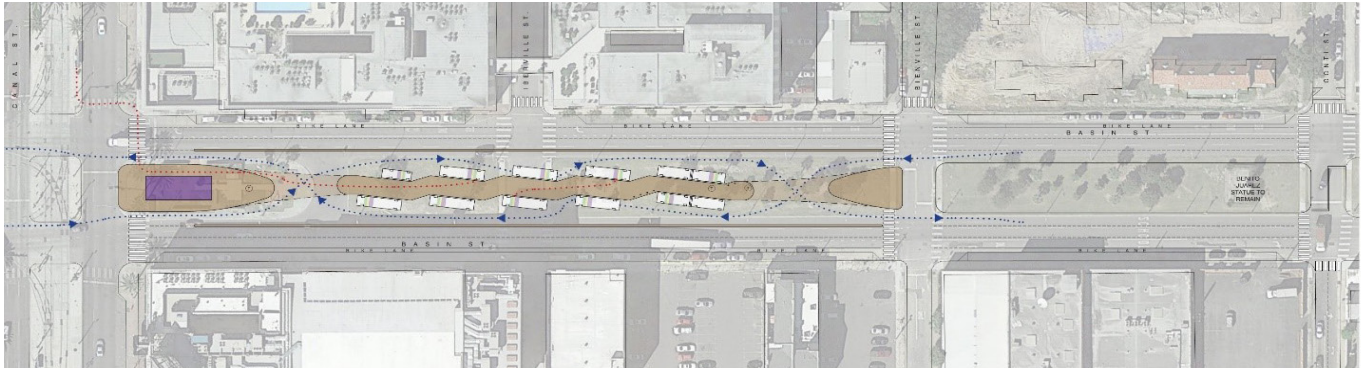
FIGURE 8-14: BASIN STREET LAYOUT CONCEPT REFINEMENT (OPTION B) - THREE BLOCK FACILITY, SIDE PLATFORMS



Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

A two-block, center platform layout (Option C) is illustrated in Figure 8-15. It accommodates ten sawtooth bus bays, five in each direction, with a flexible ingress and egress patterns at both ends of the facility. A three-block center platform option (Option D) can accommodate 16 buses (eight in both directions) as shown in Figure 8-16.

FIGURE 8-15: BASIN STREET LAYOUT CONCEPT REFINEMENT (OPTION C) - TWO-BLOCK FACILITY, CENTER PLATFORMS



Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

FIGURE 8-16: BASIN STREET LAYOUT CONCEPT REFINEMENT (OPTION D) - TWO-BLOCK FACILITY, CENTER PLATFORMS



Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

A potential advantage of a center island layout is that it simplifies pedestrian movements and limits pedestrian crossings of bus paths. Assuming that pedestrian crossings are properly controlled, there would be only six locations where pedestrians could cross bus paths- four of which are at signalized intersections outside the facility.

Controlling pedestrian movements would require a barrier or wall separating the traffic lanes of Basin Street from the facility on both the north (westbound) and south (eastbound) sides. If such a wall were not in place, pedestrians would be able to cross Basin Street at any point between Canal and Conti to enter the site, creating an uncontrolled situation and potentially dangerous conflicts between autos driving along Basin Street, transit users, and buses.

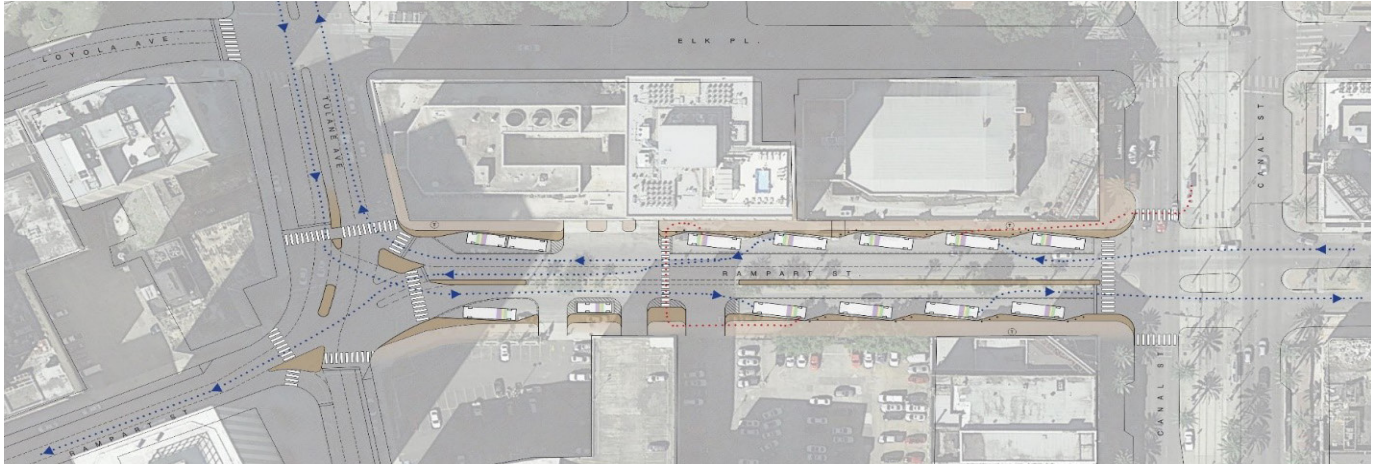
Another potential issue with this design is the potential for autos to accidentally enter the facility. With the side platform layouts, buses entering into the site would be required to turn into the facility around a curb to reach a bus bay. Drivers of private vehicles, in the lane that feeds into the site, would encounter a curb installed to guide buses into the site, making it obvious that the lane is not a through lane of Basin Street. In this layout, the curb lane passes straight through the site, making it more possible for a driver of a private vehicle to accidentally enter the site. Signage and lane markings would be required to prevent private autos from accidentally entering the facility.

Primary Site 2 - Rampart Street

Layout:

As shown in Figure 8-17, this facility layout is located along the northern and southern sides of Rampart Street between Tulane/Common and Canal Street. The layout includes nine sawtooth bays for 40-foot buses and a tenth that could accommodate a 60-foot articulated vehicle. Another small bay could accommodate a smaller vehicle.

FIGURE 8-17: RAMPART STREET LAYOUT CONCEPT REFINEMENT



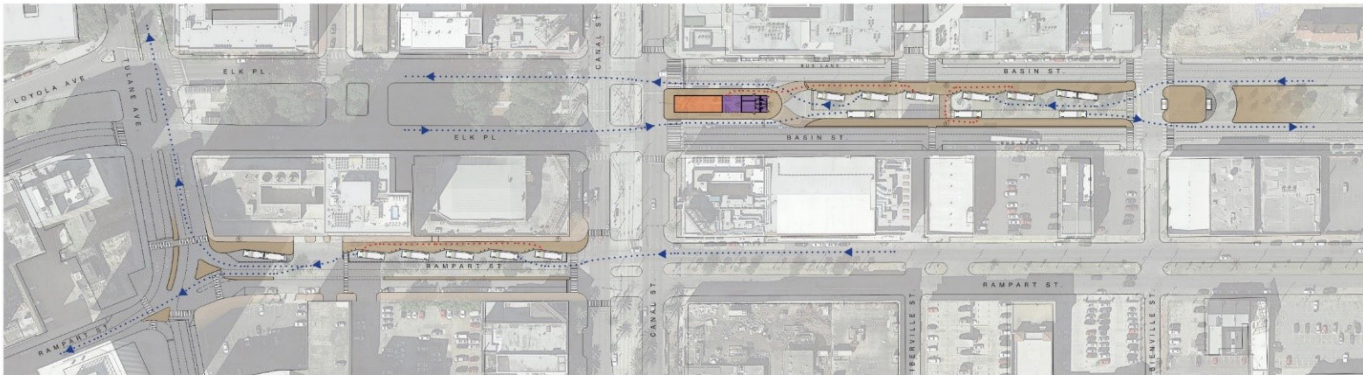
Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

Unlike the Basin Street options, auto traffic would be maintained on Rampart Street in this block, requiring buses to operate in mixed traffic through the site. The presence of three driveways along the southern side of Rampart Street breaks up the bus facility, would require buses to cross the paths of vehicles entering and exiting the driveways, and make it impossible to place a complete fence or barrier in the center of Rampart Street between the eastbound and westbound lanes. Without such a barrier, restricting pedestrian movements to marked crosswalks would be difficult. The configuration of the Tulane/Common/Rampart intersection would result in pedestrian movements that will cross not only bus movements but auto traffic as well.

Primary Site 4C - Rampart-Basin Hybrid

As shown in Figure 8-18, this alternative combines a version of the two block-layout along Basin Street with the northern half of the layout on Rampart. The Basin portion provides six sawtooth bays, at least one of which could accommodate articulated vehicles, oriented to serve westbound traffic. Pull-through bays could be accommodated along the southern (eastbound) side of the facilities to accommodate up to six more 40 -or 60-foot vehicles. The bus turning bay east of Bienville Street is maintained in this design. Up to six bays, also oriented to westbound buses, would be accommodated on the northern side of Rampart Street. Four more bays would be accommodated along the eastern and western sides of Tulane Avenue north of Rampart, two each in the northbound and southbound direction.

FIGURE 8-18: RAMPART-BASIN HYBRID LAYOUT CONCEPT



Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

Although the two portions of the facility are less than 1/10th of a mile apart, the separation of bus transfer activity between two facilities could be an inconvenience to bus customers and may be inferior to a single facility from a customer convenience standpoint. This separation could generate at least initial confusion among transit users and a high volume of pedestrian traffic would be generated along Canal Street as customers move from one portion of the facility to the other to complete transfers between bus routes.

Primary Site 5 - Duncan Plaza

As shown in Figure 8-19, this facility is a stand-alone transit center located on the northern side of Duncan Plaza. Buses would enter the site from Perdido and Gravier streets, requiring extensive re-routing. Duncan Plaza is the largest of the Tier 2 alternatives and the most self-contained. The facility would offer at least 16 full sized bus bays, including at least three (and probably more) that could accept articulated vehicles. The site is large enough to allow for significant interior space for passenger waiting, operator comfort facilities and other functions.

FIGURE 8-19: DUNCAN PLAZA LAYOUT REFINEMENT



Dashed lines represent potential bus route alignments (blue) and pedestrian pathways (red).

Bus bays are adequately sized and the aisles are large enough to allow buses to pass occupied bays in both direction in the northern aisle and in one direction on the southern. This layout offers the most straightforward bus movements and the greatest option to control and protect pedestrian movements from bus conflicts. Auto traffic would not pass through the bus site and could be easily discouraged from entering the site, minimizing potential bus-auto conflicts.

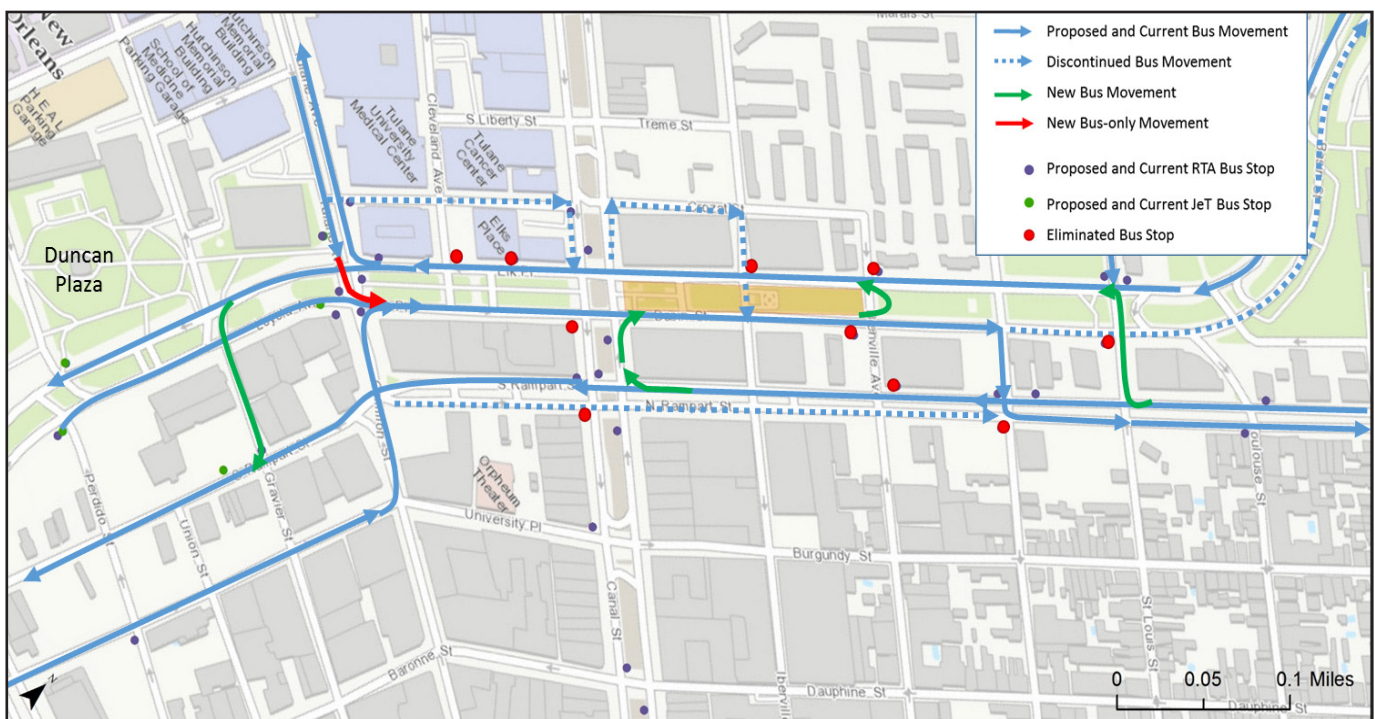
8.3 PRIMARY SITES - OPERATING CONCEPTS

This section presents initial operating concepts for the four Tier 2 primary sites to determine potential routing changes and their impacts on existing bus stops. The route segments and stops currently served that would be eliminated under each plan, and street segments that would be added as a result, are identified in Table 8-2 at the end of this section.

Primary Site 1 - Basin Street

As shown in Figure 8-20, various bus routes would be realigned to serve the transit center, resulting in some alignments being abandoned and others receiving more concentration of service such as along Basin Street between Tulane and Bienville.

FIGURE 8-20: BASIN STREET OPERATING CONCEPT



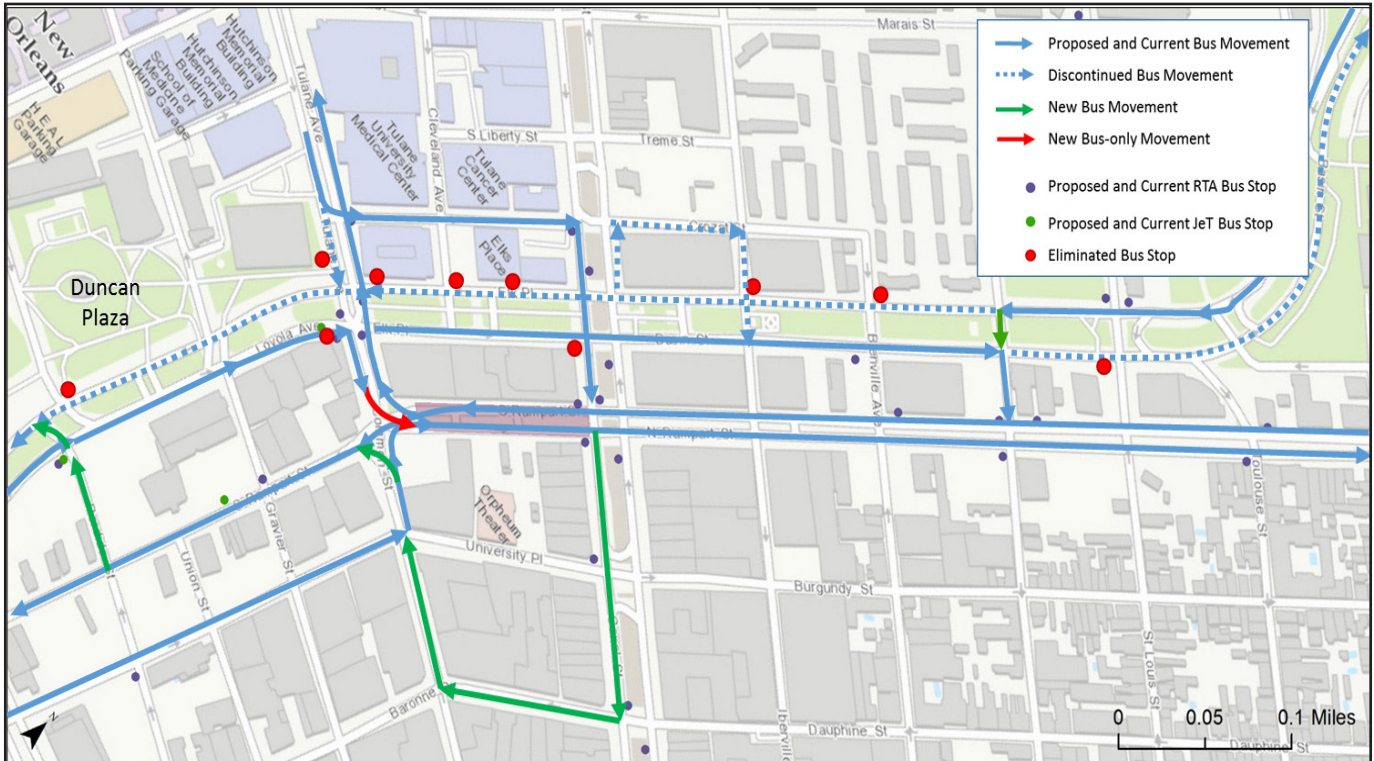
Removing service from the eastbound lane of Rampart Street would make the routes that currently use that alignment (the reverse direction of which use the westbound lane of Rampart) less direct and less understandable for customers. The removal of service from the eastbound lane of Basin Street and redirecting that service to Rampart Street is potentially even more significant. The point at which the routes rerouted from Basin rejoin their existing alignments is not shown.

This change could potentially confuse customers by removing the outbound service from the parallel street and inconvenience customers whose origins or destinations are in the abandoned section of the routes. Depending on the length of the re-route, the change also could potentially increase route travel time and mileage, and costs. All proposed movements appear to be consistent with the directionality of the roadway network.

Primary Site 2 - Rampart Street

As shown in Figure 8-21, bus routes serving the area would be realigned to enter and exit the facility, concentrating service on Rampart Street and on Canal and Tulane/Common while abandoning other segments.

FIGURE 8-21: RAMPART STREET OPERATING CONCEPT



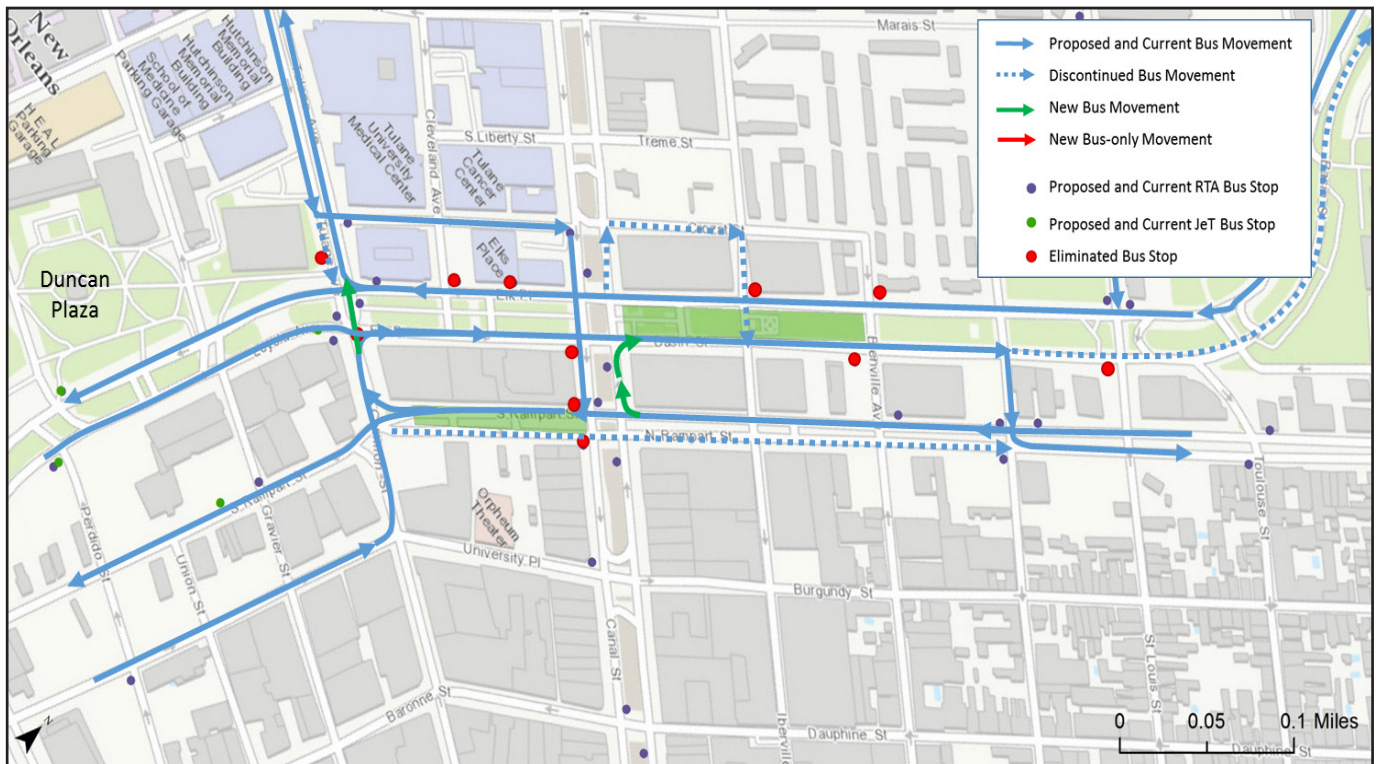
The Basin Street changes are the most significant. Removing service from the westbound lane of Basin Street over such a long distance would eliminate the bidirectional, on-the-same-street operation of some routes, making them less direct and less understandable for customers. Both changes have the potential to add significant running time to the routes, potentially making them costlier to operate.

The movement from southbound Tulane Avenue to eastbound Rampart Street would be a bus-only movement, while the others would be in mixed traffic. All proposed movements appear to be consistent with the directionality of the roadway network, and none appear to be operationally challenging for buses.

Primary Site 4C - Rampart - Basin Hybrid

Bus routes serving the area would be realigned to enter and exit the transit center, as shown in Figure 8-22.

FIGURE 8-22: RAMPART-BASIN HYBRID OPERATING CONCEPT



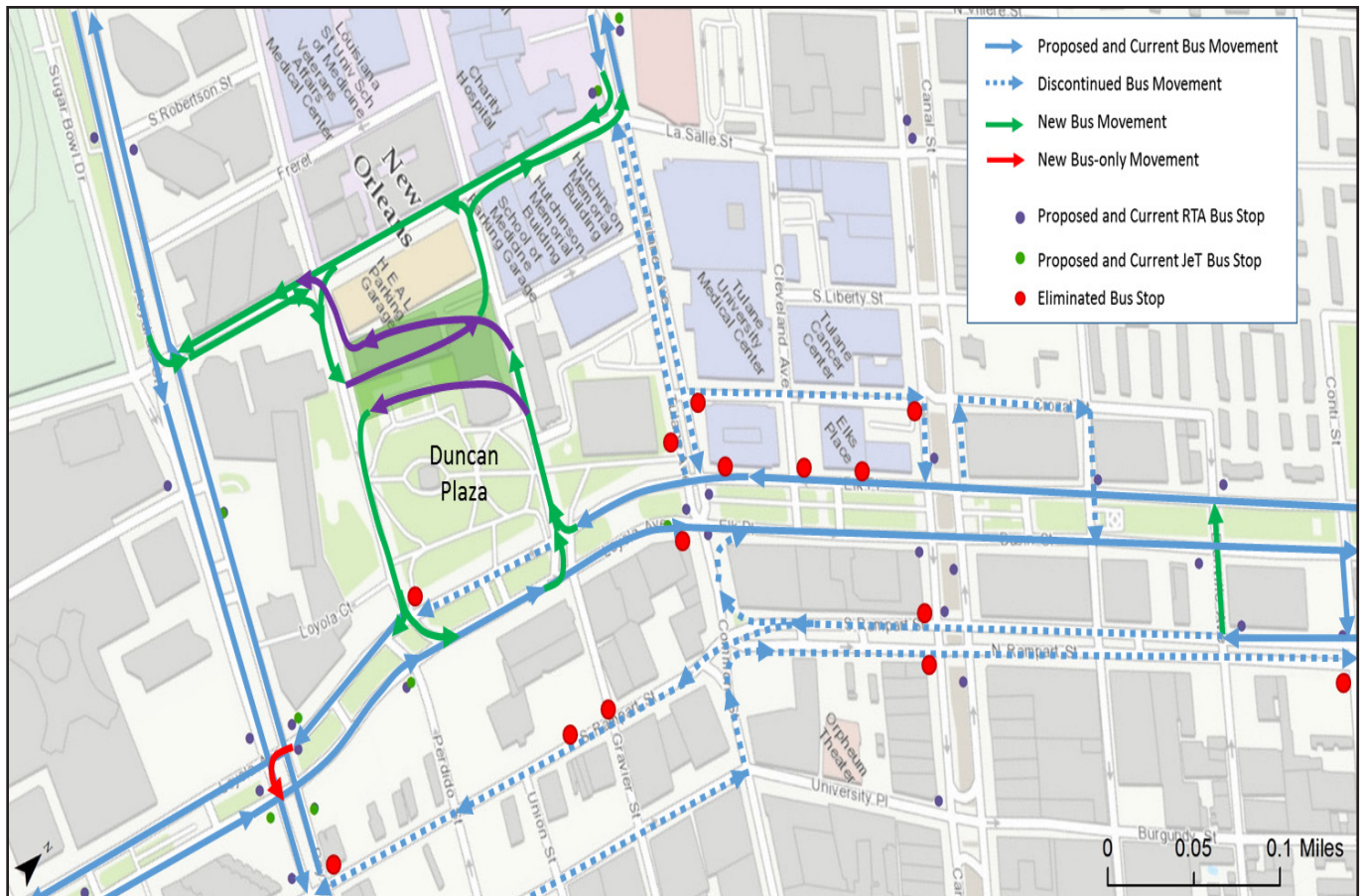
As with the Basin and Rampart alternatives, the most significant changes - in which service is removed over several blocks along Rampart and Basin - would be the most disruptive to current bus travel patterns, making the routes less understandable to passengers than they would be were routes to operate in the eastbound and westbound directions on the same street. As with the other alternatives, the movement of routes headed out of the study area in the eastbound direction from Basin to Rampart would have uncertain impacts on operations and costs.

Operations on new alignments would be limited to buses traveling from westbound Rampart north on Canal to eastbound Basin, and buses operating north on Tulane between the east and westbound lanes of Basin Street. Provided that these movements do not cause traffic issues, they would not appear to pose serious transit issues.

Primary Site 5 - Duncan Plaza

The Duncan Plaza facility is located in an area significantly removed from Canal Street and would result in the greatest dislocation of bus routes of the four primary sites, as shown in Figure 8-23.

FIGURE 8-23: DUNCAN PLAZA OPERATING CONCEPT



Various new bus movements also would be required to facilitate access to the proposed transit center site. These include services operating along LaSalle Street in both directions, on Perdido street southbound and Gravier northbound between LaSalle and Loyola/Basin Street, and Bienville north from Rampart to Basin.

The combination of alignment changes would represent a very significant change to bus operations in this area, concentrating service on Loyola/Basin Street and on Poydras Street (west of Perdido) and removing service entirely from Tulane and Rampart. Removing service from long-standing alignments could be perceived negatively by customers forced to walk one or more blocks to access their buses. While the concentration is not necessarily a negative, and keeping buses operating on the same street in both directions is ideal from the perspective of transparency and elegance of operation, traffic analysis would be necessary to determine whether segment and intersection volumes would be negatively affected by the change. In addition, analysis of individual bus routes would be necessary to determine whether the re-routings would increase travel time to such an extent that significant additional costs would be incurred as a result of the changes.

TABLE 8-2: TIER 2 PRIMARY SITES - OPERATIONAL IMPACTS

	1 BASIN STREET	2 RAMPART STREET	4C RAMPART-BASIN HYBRID	5 DUNCAN PLAZA
Route Segments no Longer Served	<ul style="list-style-type: none"> South Saratoga Street eastbound from Tulane to Canal Canal southbound and northbound from Saratoga to westbound Basin (presumably movements to and from Canal to the westbound lane of Basin also would be abandoned) Saratoga westbound from Iberville to Canal Street Iberville southbound from Saratoga to eastbound Basin Rampart eastbound from Tulane/ Common Street to Conti Street Eastbound Basin from Conti Street east 	<ul style="list-style-type: none"> Basin Street westbound from Conti to west through the limits of the study area Basin Street eastbound from Conti east through the limits of the study area Canal northbound from westbound Basin to Saratoga. Saratoga westbound from Canal Street to Iberville Iberville southbound from Saratoga to eastbound Basin 	<ul style="list-style-type: none"> Basin Street eastbound from Conti east through the limits of the study area Rampart eastbound from Tulane/ Common to Conti Tulane southbound from Saratoga to Basin westbound Canal northbound from westbound Basin to Saratoga Saratoga westbound from Canal Street to Iberville Iberville southbound from Saratoga to eastbound Basin 	<ul style="list-style-type: none"> Tulane Avenue northbound and southbound between LaSalle and Basin Loyola westbound between Gravier and Perdido (along the face of Duncan Plaza) Rampart Street westbound through the length of the study area O'Keefe Street from the study area boundary to Common Rampart Street eastbound from Common to the eastern edge of the study area Saratoga Street from Tulane Avenue east to Canal Street Canal Street northbound and southbound from Saratoga to Basin Saratoga Street eastbound from Canal Street to Iberville Iberville southbound from Saratoga Street to Basin Street westbound and eastbound Loyola westbound to Poydras Street south (bus-only movement)
Route Segments not Currently Served that Would be Added to the Network	<ul style="list-style-type: none"> Westbound Rampart to eastbound Basin via Canal. Eastbound Basin to eastbound Basin via Bienville. Westbound Rampart to westbound Basin via St. Louis Street. Southbound Tulane to eastbound Basin. 	<ul style="list-style-type: none"> Gravier Street northbound from Rampart Street to Loyola Avenue eastbound and westbound Common Street northbound from Baronne Street/Dauphine Street to Okeefe Avenue/ University Place Southbound Tulane Avenue to eastbound Rampart Street From Common Street northbound to westbound Rampart Street Baronne Street/ Dauphine Street westbound from Canal to Common Canal from eastbound Rampart Street south to Dauphine Street Conti Street from Basin Street westbound south to Rampart Street westbound 	<ul style="list-style-type: none"> Eastbound Basin Street from Tulane to Conti Northbound Canal Street Eastbound Basin from Conti to Claiborne Basin to Crozat Crozat Street from Canal to Iberville Iberville Street from Crozat to Basin 	<ul style="list-style-type: none"> Northbound Tulane Avenue from Loyola to LaSalle Southbound Tulane from LaSalle to Loyola Eastbound and westbound Rampart Street between Poydras and Canal Eastbound O'Keefe Street from Poydras to Tulane Eastbound Saratoga Street from Tulane to Iberville Eastbound Loyola Street between Gravier and Perdido Southbound Iberville Street from Crozat to Basin Northbound and southbound Canal Street from Basin to Crozat
Bus Stops Removed	10	10	10	10

8.4 ESTIMATES OF PROBABLE COST

A preliminary estimate of probable capital cost was developed by Manning Architects, a member of the consultant project team. Unit costs for major components are shown in Table 8-3. All costs shown are in 2015 dollars.

TABLE 8-3: CAPITAL UNIT COSTS

ELEMENT	UNIT COST
Demolition and site clearing	\$1.50/sq. ft.
Ticket center	\$350.00/sq. ft.
Retail (shell space only)	\$250.00/sq. ft.
Structural slab	\$75.00/sq. ft.
Benches	\$1,500.00 ea.
Bollards	\$500.00 ea.
Bike racks	\$3,500.00 ea.
Lighting	\$7,000.00 ea.
Pedestrian walkway	\$18.75/sq. ft.
Concrete infill	\$12.00/sq. ft.
Covered waiting area	\$200.00/sq. ft.

Table 8-4 summarizes the cost estimates by category. The detailed cost estimate is included in the Appendix of this report.

TABLE 8-4: TIER 2 PRIMARY ALTERNATIVES - PRELIMINARY ESTIMATE OF PROBABLE COST

COST CATEGORY	1	2	4C	5
	Basin Street	Rampart Street	Rampart-Basin Hybrid	Duncan Plaza
Demolition	\$102,608	\$52,943	\$122,640	\$150,450
Enclosed waiting and retail space	\$3,016,250	\$40,000	\$2,795,750	\$3,717,250
Hardscape and Landscape	\$1,254,466	\$741,952	\$1,494,056	\$1,764,467
Canopy	\$4,205,200	\$2,559,200	\$5,316,800	\$5,105,600
Design Contingency (20%)	\$1,715,705	\$678,819	\$1,945,849	\$2,147,553
Construction Contingency (10%)	\$1,029,423	\$407,291	\$1,167,510	\$1,288,532
Total	\$11,233,650	\$4,480,204	\$12,842,605	\$14,173,853

8.5 TIER 2 SCREENING

As part of the Tier 2 Screening, comparisons of quantitative characteristics (Table 8-5) and qualitative characteristics (Table 8-6) were developed. The results of the scoring process are shown in Table 8-7.

TABLE 8-5: TIER 2 QUANTIFIABLE CHARACTERISTICS

MEASURE	1 Basin Street	2 Rampart Street	4C Basin-Rampart Hybrid	5 Duncan Plaza
Area available for rider amenities and waiting areas	24,028 sq. ft.	4,938 sq. ft.	26,031 sq. ft.	34,193 sq. ft.
Leasable potential area on-site	2,385 sq. ft.	0 sq. ft.	2,000 sq. ft.	11,615 sq. ft.
Walk time between most distant bus bays; include signal timing	109 sec.	116 sec.	362 sec.	108 sec.
Average walk time to nearest Canal Streetcar stop	132. sec.	115 sec.	129 sec.	507 sec.
Net change in on-street parking	-14 spaces	-10 spaces	-8 spaces	-4 spaces
Jobs within ½ mile	56,904	63,976	60,440	67,941
Population within ½ mile	6,249	4,836	5,542	3,691
Service hours required	20,227	16,165	15,364	25,644

Source: Jobs-2013 LEHD; Population- 2013 American Community Survey

TABLE 8-6: TIER 2 QUALITATIVE CHARACTERISTICS



	1 Basin Street	2 Rampart Street	4C Basin-Rampart Hybrid	5 Duncan Plaza
Advantages	<ul style="list-style-type: none"> ■ Contained site: minimal pedestrian-bus-traffic conflicts ■ Site in public realm ■ History of transportation use ■ Accommodates current and future needs ■ Ties in with bike network ■ Adjacent to Canal Streetcar spine ■ Flexibility to allow for alternate layouts ■ Allows for an enclosed structure ■ Potential for iconic design 	<ul style="list-style-type: none"> ■ Most centrally located: downtown employment, activity and transit ■ Site in public realm ■ Accommodates current and future needs ■ Adjacent to Canal Streetcar spine 	<ul style="list-style-type: none"> ■ Most flexible design accommodating current system and future expansion ■ Most centrally located: downtown employment, activity and transit ■ Site in public realm ■ Adjacent to Canal Streetcar spine ■ Can accommodate enclosed structure at Basin ■ No impacts to businesses on lake side of Rampart Street 	<ul style="list-style-type: none"> ■ Large site: can accommodate current system and future expansion ■ Near office core, convenient to City Hall ■ Can accommodate enclosed structure ■ Transit Oriented Development potential
Disadvantages	<ul style="list-style-type: none"> ■ Viewsheds from / impacts to adjacent buildings: Krauss and Saenger ■ Sewer line beneath neutral ground ■ Need to relocate Bolivar Monument and Vietnam Veterans Memorial  	<ul style="list-style-type: none"> ■ Not a self-contained site: buses and pedestrians mix with traffic ■ Stops and shelters located on sidewalk ■ Impacts on existing business visibility and on-street parking ■ Curb cuts ■ Complex intersection at S. Rampart and Tulane ■ Removes one downriver traffic lane ■ Cannot accommodate enclosed structure ■ Limited opportunity for iconic design 	<ul style="list-style-type: none"> ■ Spread-out walking distances between buses could be up to four blocks ■ Basin portion: <ul style="list-style-type: none"> ■ Viewsheds from / impacts to adjacent buildings: Krauss and Saenger ■ Sewer line beneath neutral ground ■ Need to relocate Bolivar monument and Vietnam Veteran's Memorial ■ Rampart portion: <ul style="list-style-type: none"> ■ Not a self-contained site: buses and pedestrians mix with traffic ■ Stops & shelters located on sidewalk ■ Curb cuts ■ Complex intersection at S. Rampart and Tulane 	<ul style="list-style-type: none"> ■ Personal safety concerns: busy by day but underpopulated at nights and weekends ■ Not convenient to Canal Streetcar spine ■ May not be compatible with plans for Duncan Plaza and adjacent redevelopment

TABLE 8-7: TIER 2 SCREENING

TIER 2 SCREENING EVALUATION CRITERIA		Weight	Tier 2 Primary Sites			
			1	2	4C	5
Description	Measure		Basin Street	Rampart Street	Rampart-Basin	Duncan Plaza
Facility Design: Rider Experience		30%	121	86	69	96
Passenger Waiting Area Size	Square footage available for rider amenities and waiting areas	5	4	1	4	5
Ease of Transferring	Walk time between most distant bus bays; include signal timing	6	5	5	1	5
Walk Time to Streetcars	Average walk time to nearest Canal streetcar stop	8	4	5	4	1
Convenient Station Layout	Ease of pedestrian circulation within the transit center area	11	4	1	1	3
Facility Design: Community Experience		20%	68	38	63	73
Iconic Design Potential		3	5	3	5	3
Bicycle Facilities and Access	Ease of bicycle access (ability to provide bicycle parking and proximity to bicycle lanes) and impact to bicycle infrastructure	3	5	3	4	3
Capacity for On-site Transit Oriented Development	Leasable sq. ft. potential on-site (ground-floor)	3	1	0	1	5
Relative Traffic Impact	Congestion-Level of Service (LOS); Transit-LOS	5	4	1	3	2
Business Visibility and Access	Diminished visibility and access to neighboring business	3	4	3	3	5
Net On-Street Parking Change	Parking added at discontinued bus stops minus Parking removed at station area	3	1	2	3	5
Location		15%	63	63	60	48
Visibility and Activity	Evaluation of level of activity and visibility in area surrounding transit center	7	4	4	4	2
Population in Half-Mile Buffer	Population	3	5	4	4	3
Jobs in Half-Mile Buffer	Average walk time to nearest Canal streetcar stop	5	4	5	4	5

TIER 2 SCREENING EVALUATION CRITERIA		Weight	Tier 2 Primary Sites			
Description	Measure		Basin Street	Rampart Street	Basin-Rampart	Duncan Plaza
Facility Design: Rider Experience		30%	121	86	69	96
Implementation		15%	30	60	23	45
Ease of Construction	Level of complexity to construct facility	8	2	4	2	3
Capital Cost	Estimated construction costs	7	2	4	1	3
RTA Service Impacts		20%	80	80	100	80
Bus Service Impacts	Service hours	10	4	5	5	3
Capacity	Number of bus bays	10	4	3	5	5
TOTAL		100%	362	327	315	342

The Basin Street site among the four alternative primary sites, followed by Duncan Plaza. The Basin Street scored significantly higher than the other four sites in terms of Facility Design: Rider Experience. Although Duncan Plaza scored slightly higher on the size of the passenger waiting area, Basin Street scored much higher than Duncan Plaza on walk time to streetcars, given its adjacency to Canal Street versus the three-block walk between the Duncan Plaza site and Canal Street. Similarly, in terms of Location, Basin Street, along with the Rampart Street site, scored much higher than Duncan Plaza.

Duncan Plaza scored highest for Facility Design: Community Experience. It has very little impact on on-street parking and is in close proximity to the CBD's employment core. Basin Street and the Rampart-Basin Hybrid sites also scored relatively higher in terms of Community Experience while the Rampart Street site scored low in this category.

Because it straddles both sides of Canal Street where there is already a high amount of bus service, the Basin-Rampart Hybrid site scored highest on minimizing RTA Service Impacts. Because of its smaller size and on-street layout, the Rampart Street site scored highest for Implementation, which includes lowest probable capital cost. Conversely, the largest site among the alternatives – Rampart-Basin Hybrid.

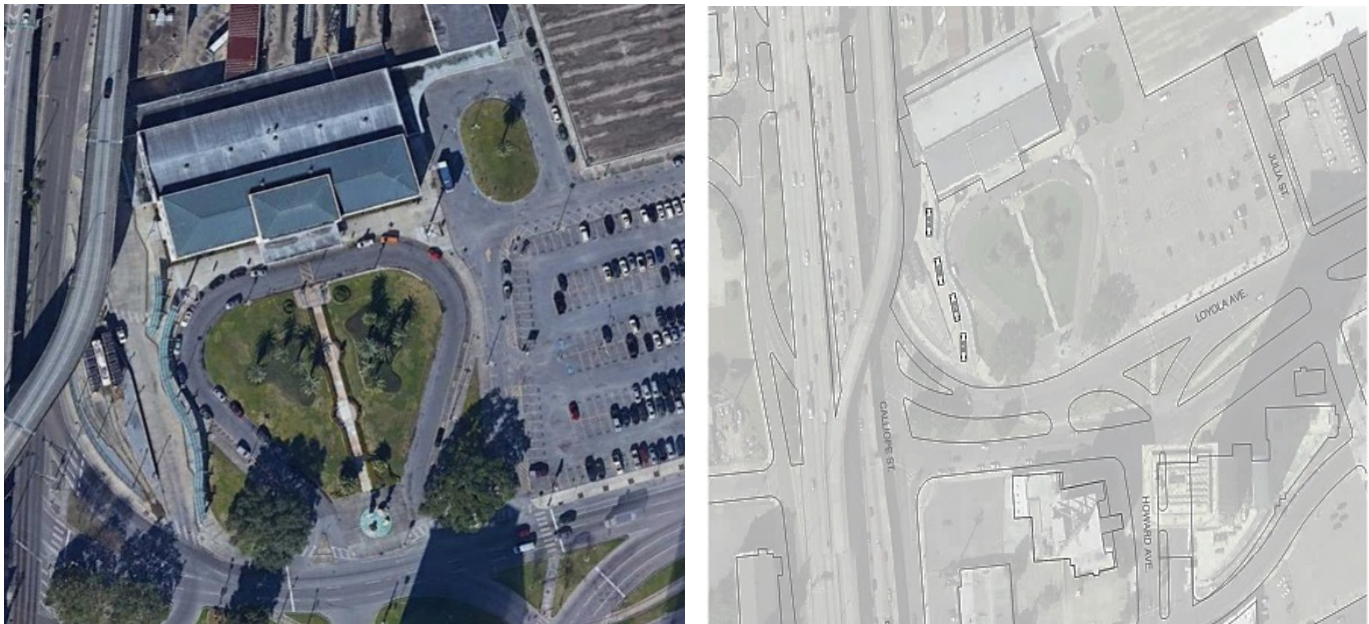
8.6 SECONDARY/SATELLITE SITES

Concept layouts were also developed for the four Tier 2 secondary/satellite sites. These sites were not subject to Level 2 screening. These locations would be carried forward for further consideration as detailed designs are developed for a preferred primary location and additional capacity needs, that could be addressed by one or more secondary/satellite sites would be considered at that time.

Secondary/Satellite Site 6 - Union Passenger Terminal (UPT)

As shown in Figure 8-24, the layout concept at UPT consists of four sawtooth bus bays adjacent to the Loyola-UPT Streetcar terminus stop. Buses would use the UPT circle and enter and exit via Loyola Street.

FIGURE 8-24: UNION PASSENGER TERMINAL SITE AND LAYOUT CONCEPT

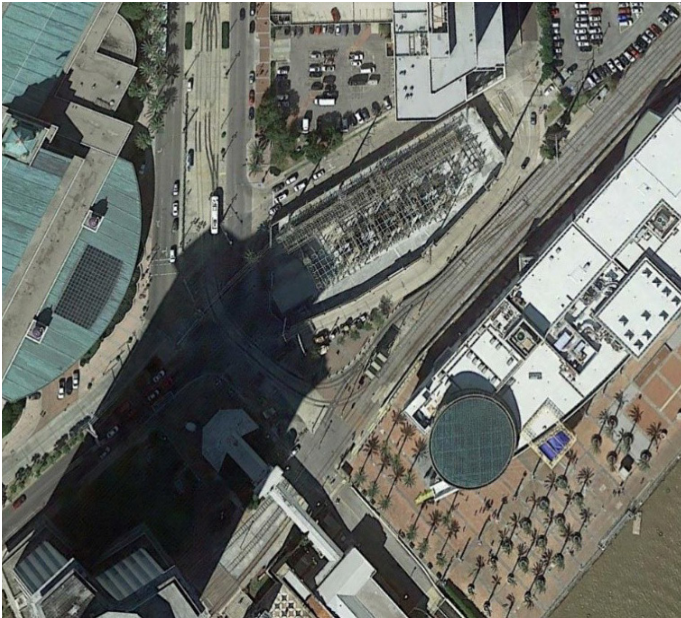


Source: Google Earth

Secondary/Satellite Site 7 - Canal - Ferry Terminal

Figure 8-25 shows the concept layout of a secondary/satellite facility at the foot of Canal Street. The layout concept consists of six pull-through bus stops on Badine Street, on the side of Canal opposite the ferry terminal, between a substation and wall separating Badine from the Riverfront Streetcar right-of-way. Buses would enter and exit Badine via Canal Street and operate in a counter-clockwise direction (Badine operates one-way counter-clockwise around the substation).

FIGURE 8-25: CANAL - FERRY TERMINAL SITE AND LAYOUT CONCEPT



Source: Google Earth



Secondary/Satellite Site 11 - Galvez at Medical District

The Galvez Medical District site (Figure 8-26) would consist of an on-street facility on the curbside of Galvez between Canal Street, mid-block toward Tulane Avenue. Passenger waiting areas would utilize existing sidewalk space under this layout concept. This location can accommodate about 17 pull-through spaces, nine on the north side and eight on the south side. The existing neutral ground would not be impacted.

FIGURE 8-26: GALVEZ-MEDICAL DISTRICT SITE AND LAYOUT CONCEPT



Source: Google Earth

Secondary/Satellite Site 12 - Broad and Washington

The layout concept of the Broad-Washington site (Figure 8-27) would consist of four on-street stops near the intersection of these two city streets and require passengers to cross one or both streets to make a transfer connection.

FIGURE 8-27: BROAD AND WASHINGTON SITE AND LAYOUT CONCEPT



Source: Google Earth

