Transportation Analysis

Harrah's Station Square Casino

Pittsburgh, Pennsylvania

Submitted To:

City of Pittsburgh
and
Pennsylvania Gaming Control Board

Prepared By:

DKS Associates
GAI Consultants
December, 2005

Volume 1 of 2
Report

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EXECUTIVE SUMMARY

This study determined that the transportation system at Station Square can accommodate the additional trips expected to be generated by the proposed Harrah's Station Square Casino, while providing efficient operations and acceptable traffic conditions for area travelers. The key factors that lead to that conclusion are:

1. Station Square is the established entertainment center for the Pittsburgh metropolitan area. As a result many of the trips that will be generated by the Casino will be drawn from existing Station Square patrons and will not be new trips. Station Square annually draws 2.5 million visitors a year to the many uses and activities in the development. Many of these current visitors will become patrons of the Casino by extending their stays to visit this new entertainment facility. These trips are considered captured trips from existing visitors and do not represent new trips on the transportation system.

2. Station Square is a transportation hub for the downtown Pittsburgh. Many of the trips that will be generated by the Casino will be made on other transportation modes, rather than the automobile. Station Square patrons and employees have access to the greatest variety of transportation modes available in the city. In addition to convenient automobile access, the development is currently served by pedestrian/bicycle facilities; public boat docks, a private boat fleet and water taxi service, public transit in the form of bus, light rail train and incline railway services; and private tour, charter and shuttle bus service. A high percentage of patron and employee trips are expected to take advantage of these available services and minimize the number of new auto trips to the area. The recommended traffic and parking management plans will encourage the use of non-automobile modes.

3. The roadway system serving Station Square is currently operating efficiently within acceptable levels of service. It can be upgraded to accommodate additional traffic while maintaining acceptable conditions. Peak traffic periods on weekdays (5:00 – 6:00 PM) and weekends (6:00 – 7:00 PM) were identified and examined to determine current conditions and the ability to accommodate additional traffic. With the extensive transportation improvement program recommended in this report, the roadway system serving Station Square will continue to provide efficient levels of service to area motorists. The transportation improvement program includes street widenings and

lane additions, operational upgrades to the traffic control system, grade separation of pedestrian movements over Carson Street, new structured parking facilities, installation of intelligent transportation system (ITS) devices and the implementation of efficient traffic and parking management plans.

Harrah's Station Square Casino and related parking facilities will be located west of the existing Sheraton Hotel on the portion of the site currently occupied by the west parking lots and the Amphitheatre. The traffic benefits provided by this location include improved accessibility from I-279 / Fort Pitt Bridge, utilization of the existing signalized west access driveway with its high capacity and long stacking length as the primary access to/from the casino parking and the ability to obtain new access along this western segment of Carson Street. The streets and intersections in this area currently have available capacity and experience excellent traffic conditions.

The Overall Master Plan Concept (shown at the end of this section) for the Station Square site proposes a mixed use, dense, walk-able urban environment with a mix of employment, civic and housing facilities. The Casino forms an important anchor point of this environment, which will include over 1,200 residential units on the eastern end of the site and over 300 residential units on the western end. The East parcel has the advantage of being located next to the light rail station, and provides access from the station to the riverfront trail, as well as to Main Street leading to the Casino. The West Parcel provides a grand access point from the incline rail station to the riverfront trail. The replacement of the East Warehouse Building that has retail / restaurant space with residential development will reduce the site traffic generation used in this evaluation and create more walking trips through the development. Ultimately there will be a more balanced mixed-use site with the addition of these two residential districts.

A key part of this analysis was determining the transportation characteristics of the Casino, including trip generation, mode split, vehicle occupancy, directional distribution, and parking space needs. These determinations were made utilizing information available from the Institute of Transportation (ITE), Harrah's Casino operations, surveys at existing Station Square and trip distribution information provided by the City of Pittsburgh. On a peak design weekday the Casino is expected to have 24,000 daily visitors with 700 employees on-site, generating 1050 new peak-hour (5:00 – 6:00 PM) vehicle trips and the use of 1336 parking spaces (8:30 PM). On a peak design Saturday the Casino is expected to have 40,000 daily visitors with 900 employees on-site, generating 1536 new peak-hour (6:00 –7:00 PM) vehicle trips and the use of 3103 parking spaces (8:30 PM). These vehicle trips will be distributed rather evenly on the area roadway system.

Patrons entering:

- 35% from Smithfield Street
- 29% from West Carson Street
- 23% from the Interstate 279 ramp at the Fort Pitt Bridge
- 7% from Arlington Avenue
- 6% from East Carson Street
- 0% from the Wabash tunnel (outbound only during analysis time periods)

Patrons exiting:

- 35% to Smithfield Street
- 24% to West Carson Street
- 23% to the Interstate 279 ramp at the Fort Pitt Bridge
- 4% to Arlington Avenue
- 6% to East Carson Street
- 8% to the Wabash tunnel

To accommodate these increased transportation needs, an extensive transportation improvement program has been recommended. The transportation improvement program for Station Square includes street widenings and lane additions at key intersections and access driveways, operational upgrades to the traffic control system, grade separation of pedestrian movements over Carson Street, new structured parking facilities, installation of intelligent transportation system (ITS) devices and the implementation of efficient traffic and parking management plans. This improvement program will be funded by the developers of Station Square.

The streets and intersections in the study area that serve Station Square will be improved to provide greater capacity and efficiency. All five of the existing access driveways will be upgraded with additional lanes and improved traffic control and two new access driveways are proposed on Carson Street. The intersection of Carson Street and Smithfield Street will be upgraded with additional traffic lanes and a

pedestrian overpass across Carson Street. An exclusive westbound right turn lane will be constructed by widening Carson Street on the north side near the intersection. An additional southbound right turn lane will be constructed by widening Smithfield Street on the eastside at the intersection. The pedestrian overpass will link Station Square to the "T" Station and the Monongahela Incline Station over Carson Street. This overpass will reduce vehicle-pedestrian conflicts at the intersection and improve intersection capacity.

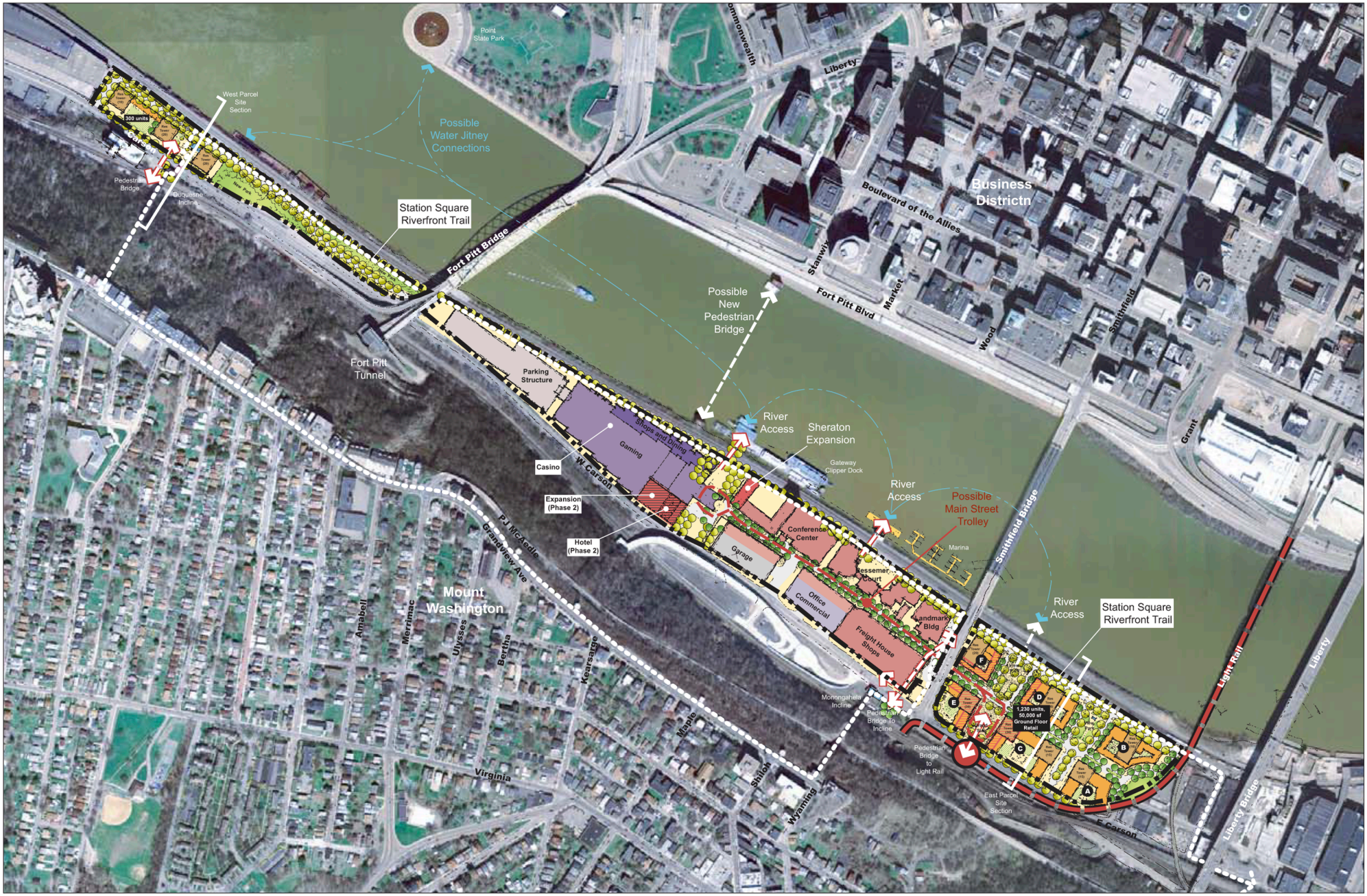
The six traffic signals (five existing and one proposed) along Carson Street in the study area will be retimed, interconnected and upgraded to function as a system, providing coordinated operation with progressive traffic movements. This system will permit the implementation of special timing patterns to coincide with weekday and weekend peak traffic flows at Station Square. The selection of the appropriate patterns will be based upon traffic volumes detected at key locations along Carson Street and at the Station Square access driveways. New traffic detectors will be installed to obtain this traffic volume information.

Intelligent transportation system (ITS) devices will be installed to improve the efficiency and operation of the streets and parking facilities serving Station Square. These ITS devices will include traffic surveillance cameras and variable message signs that will be installed at key locations within and adjacent to Station Square. These devices will be used to obtain real time traffic and parking information and to provide direction to motorists for their trip decision making. They will be operated and monitored at a new traffic management center (TMC) within Station Square. Attendants in the TMC will monitor conditions and make decisions on changing the use of driveways, reversing parking control lanes and opening up additional parking booths. The traffic management plan will also include employee travel programs, designated areas for tour bus and shuttle bus operations and a revised operations schedule for the Wabash Tunnel.

The parking management plan for Station Square will utilize technical advances in parking control equipment and implementation of parking policies to improve parking conditions. Approximately 5500 parking spaces will be provided at Station Square to accommodate peak parking demands. A key parking system upgrade will be the installation of pay-on-foot kiosks at strategic locations for patrons to pay for parking prior to returning to their vehicles. This system provides patrons with a parking receipt ticket which they insert into the parking control equipment at the exit to raise the gates. The use of this equipment reduces transaction times at the exit gates. The parking management plan will include a parking rate structure that will encourage high vehicle occupancies and few long term parkers. Parking rates will be the same or higher than they currently are and the hourly rates will increase after 5 hours to discourage long term parking. The rates will be adjusted periodically to best manage the parking system.

As mentioned previously, variable message signs (VMS) will be installed at parking garage entrances to inform motorists about the number of parking spaces that are available in the facility and on which levels these spaces are located. The purpose of these signs is to make the parking space search as efficient as possible, resulting in less circulation and reduced delays.

Projected peak hour traffic volumes were developed for the opening year of 2008 based upon the background growth of existing peak hour traffic and the addition of the new traffic generated by the Casino. These peak traffic volumes were analyzed considering the street, pedestrian, traffic control and operational improvements recommended in the transportation improvement program. The results indicate that the study area roadways and intersections will continue to operate at acceptable levels of service and accommodate the growth in existing traffic volumes within and adjacent to Station Square as well as the additional traffic generated by the Casino.



HARRAH'S STATION SQUARE CASINO

PITTSBURGH, PENNSYLVANIA

OVERALL CONCEPT PLAN

DECEMBER 28, 2005

CALTHORPE ASSOCIATES
URBAN DESIGNERS, PLANNERS, ARCHITECTS

28.1 A

1. INTRODUCTION

Station Square is located adjacent to downtown Pittsburgh on the southwest bank of the Monongahela River. It is the established entertainment center for the Pittsburgh metropolitan area and annually receives approximately 2.5 million visitors a year who shop at the 30 retail stores, enjoy the food and entertainment at 25 restaurants and night clubs, stay at the Sheraton Hotel and Conference Center, travel on the Gateway Clipper Fleet, conduct business at the Grand Concourse offices and/or attend special events at the amphitheater.

Station Square is "Pittsburgh's Place to Play". In addition, this location also functions as a transportation hub for the City of Pittsburgh, providing access to twelve transportation options, representing the greatest variety available in the City.

- Convenient Walking to/from the Downtown across the Smithfield Street Bridge
- Three Rivers Heritage Hiking / Bicycle Trail through the Site
- Gateway Clipper Fleet Tours and Water Taxi Service
- Public Boat Docks
- Light Rail Train Service to the adjacent "T" Station
- Public Bus Service to the adjacent Bus Stops on Smithfield Street and Carson Street
- Monongahela Incline
- Duquesne Incline
- Private Tour and Charter Bus Service
- Private Shuttle Bus Service to/from the Downtown
- Automobile Access to almost 3,800 On-Site Parking Spaces
- Direct Access to Wabash Tunnel for Daytime HOV Access and Evening Outbound Traffic

This report presents the findings and recommendations of a transportation study that was completed for the proposed Harrah's Station Square Casino. The proposed development program includes 4,000 slot machines. The Casino is expected to open with 3000 slot machines with another 1000 slot machines added later. For purposes of this transportation study, new traffic generation was based upon the total 4000 slot machines. The Casino and related parking facilities will replace the existing amphitheatre and surface parking lots at the west end of the site. Subsequent phases of this transportation study will address build-out development plans at Station Square and will be documented in future updates of this report.

The amphitheatre and west parking lots are currently used for special events at Station Square. An interesting point to note is that when these events are scheduled or when the Steelers have a home football game, Station Square attracts the equivalent number of patrons that will be generated at peak times by the Casino. Thus, the area's transportation system has already experienced the equivalent traffic demands that will be generated by the Casino. The replacement of the amphitheatre with the Casino will result in the regular occurrence of these traffic volumes and the need to have efficient access, circulation and parking systems at Station Square. This study addressed the transportation needs of Station Square.

Future Modifications

The Overall Master Plan Concept (shown at the end of the Executive Summary) for the Station Square site proposes to revitalize the southern strip of the Monongahela Riverfront with a mixed use, dense, walk-able urban environment. The new development will ultimately provide the project with a new destination, but also a mix of employment, civic and housing facilities. The Casino forms an important anchor point of this environment, which takes advantage of its riverfront access, and close proximity and views of Downtown. Dense residential neighborhoods within walking distance of the Retail Core will provide the right balance for keeping the area alive and active throughout day and night, making it a safe, active and vibrant place to visit as well as live. The Master Plan Concept includes over 1,200 residential units on the eastern end of the site and over 300 residential units on the western end.

The provision of high-density residential neighborhoods in close proximity to existing and proposed retail destinations, as well as Downtown Pittsburgh, provides a unique development opportunity for this site. Not only does it provide new housing opportunities close to downtown and transit facilities, it adds vitality to the retail environment by providing 'eyes-on-the-street' security with its 24-hour presence.

The completion of the Master Plan will provide for two main residential districts – the 'East Parcel' side and the 'West Parcel' side. The East parcel has the advantage of being located next to the light rail station, and provides access from the station to the riverfront trail, as well as to Main Street leading to the Casino. The West Parcel provides a grand access point from the incline rail station to the riverfront trail. The replacement of the East Warehouse Building that has retail / restaurant space with residential development will reduce the site traffic generation used in this evaluation and create more walking trips through the development. Ultimately there will be a more balanced mixed-use site with the addition of these two residential districts.

Study Area

The study area was determined jointly with City of Pittsburgh Department of Panning staff considering the location of primary traffic impacts. The study area encompasses the transportation system within and adjacent to Station Square from the eastern access drive to Station Square at Arlington Avenue to the western access driveway west of the Fort Pitt Bridge, a distance of 1.3 miles. Carson Street extends through this area connecting to four Station Square access driveways as well as Arlington Avenue, Smithfield Street, the Wabash Tunnel HOV Facility and the ramps to and from the north on the Fort Pitt Bridge (I-279). Located within this area are the Duquesne Incline, the Monongahela Incline, the Station Square light rail transit station, and an exit from the Port Authority's south busway. The study area is shown on Figure 1.

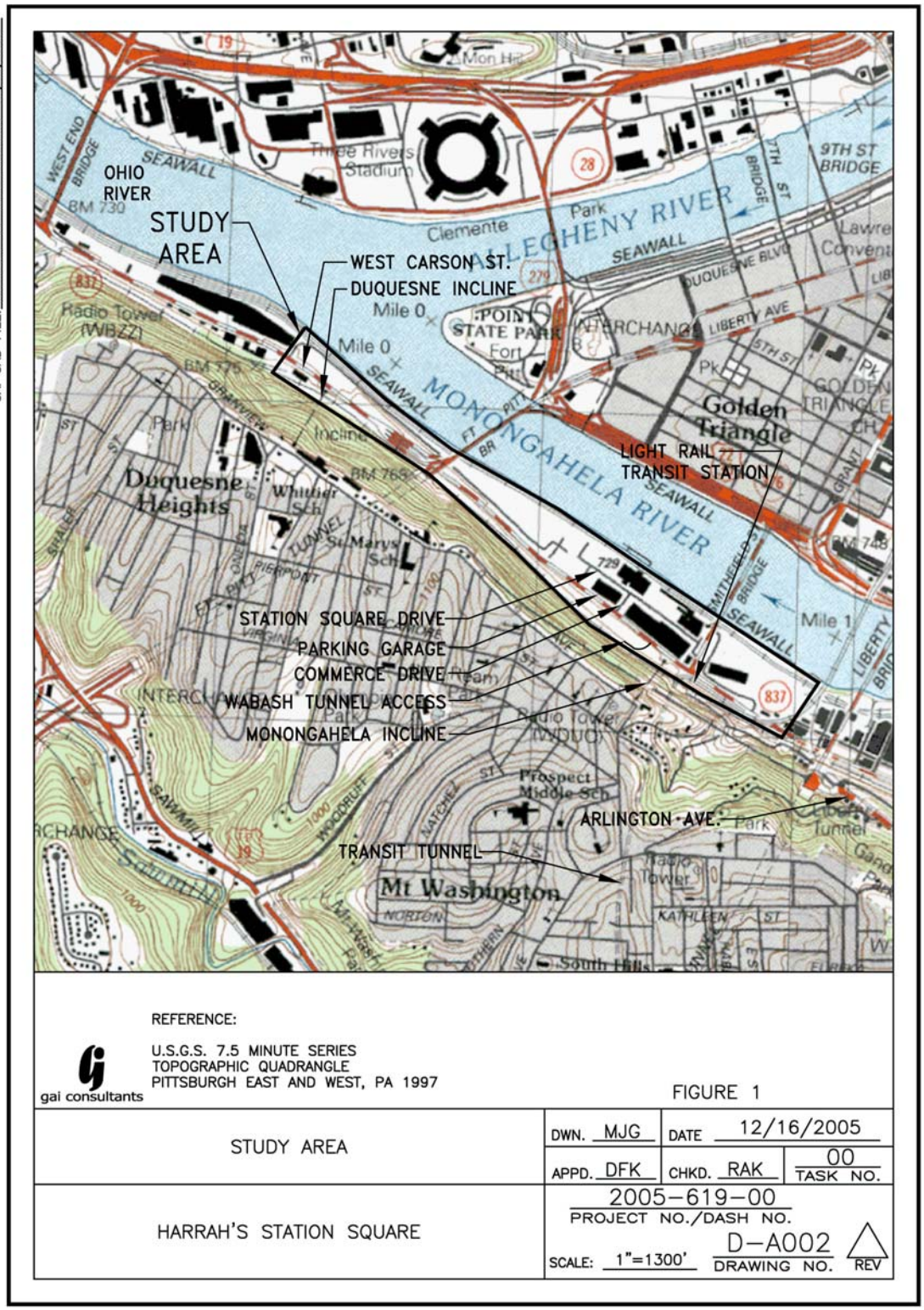
Scope

The scope of this transportation study was developed and coordinated with the City of Pittsburgh to address the key transportation issues related to the proposed Casino. The study area, peak time periods, and modes split information were discussed with the City staff and agreements were reached for this study. City staff requested the opportunity to expand the scope of this transportation study, following their review of the initial findings.

The scope of this study included the following tasks:

1. Scope Development with City Staff

A meeting was held with City staff to discuss the parameters of our transportation study. At this meeting the scope for this study was developed to respond to the key transportation issues within the time frame available. It was agreed that (1) the initial study area would include Carson Street from Arlington Avenue to the west access driveway to Station Square, (2) the peak time periods for analyses would include the standard weekday commuter peak hour and the weekend gaming peak hour, (3) an opening year of 2008 was selected for traffic projections and (4) all transportation modes serving Station Square would be considered in the analysis.


GAI CAD FILE: 2004-397-00-00-D-A002.DWG 12/16/2005
OHIO RIVER
STUDY AREA
WEST CARSON ST.
DUQUESNE INCLINE
Mile 0
Mile 0
ALLEGHENY RIVER
MONONGAHELA RIVER
SEAWALL
Three Rivers Stadium
Clemente Park
POINT STATE PARK
Fort Pitt
Golden Triangle
LIGHT RAIL TRANSIT STATION
Duquesne Heights
Whittier Sch
St. Marys Sch
Prospect Middle Sch
Mt Washington
STATION SQUARE DRIVE
PARKING GARAGE
COMMERCE DRIVE
WABASH TUNNEL ACCESS
MONONGAHELA INCLINE
ARLINGTON AVE.
TRANSIT TUNNEL
Mile 1
9TH ST BRIDGE
WEST END BRIDGE
SMITHFIELD ST BRIDGE
LIBERTY BRIDGE
Radio Tower (WBZZ)
Radio Tower (WDUQ)
REFERENCE:
U.S.G.S. 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE
PITTSBURGH EAST AND WEST, PA 1997
gai consultants
FIGURE 1
STUDY AREA
DWN. MJG
DATE 12/16/2005
APPD. DFK
CHKD. RAK
00
TASK NO.
HARRAH'S STATION SQUARE
2005-619-00
PROJECT NO./DASH NO.
SCALE: 1"=1300'
D-A002
DRAWING NO.
REV

2. Analysis of Existing Conditions

Daily and peak hour traffic counts were taken on the streets and at the key intersections in the study area, including all existing access driveways serving Station Square. Manual traffic counts were conducted on two weekdays, on a Saturday and on a Sunday when the Steelers had a home game at Heinz Field. The counts involved the use of over 15 Traffic Engineers and Technicians who conducted counts of vehicles and pedestrians at the intersections and driveways serving Station Square. These counts were used to identify existing trip generation, directional distribution patterns and pedestrian movements. Existing traffic conditions during the peak design periods were analyzed using the Synchro Traffic Analysis Program and SIM Traffic Simulation Model. An analysis of existing parking conditions was completed using 2005 parking transaction data for the parking facilities at Station Square. This data identified peak periods and occupancies of parking spaces.

3. Transportation Characteristics of the Casino

The expected transportation characteristics of Harrah's Station Square Casino were identified for use in the analysis. These characteristics included daily and peak hour trip generation, mode split, directional distribution, vehicle occupancy and parking space needs. These characteristics were based upon existing transportation characteristics surveyed at Station Square, information provided by Harrah's from their existing casino facilities and upon published reports by the Institute of Transportation Engineers (ITE) regarding casino traffic characteristics.

4. Transportation Improvement Program

A comprehensive transportation improvement program was developed to improve the efficiency of access and parking at Station Square and to accommodate the additional trips expected to be generated by the Casino. The transportation improvement program included street widenings and lane additions, operational upgrades to the traffic control system, grade separation of pedestrian movements over Carson Street, installation of intelligent transportation system (ITS) devices, and implementation of traffic and parking management plans.

5. Evaluation of Recommended Transportation System

The roadway system in the study area including the recommended transportation improvement program was evaluated utilizing projected 2008 peak hour trip generation for the Casino, and considering growth in non-development related trips. The evaluation of the street system and access plan was accomplished with the Synchro Analysis Program and SIM Traffic Simulation Model. This evaluation was used to test the capabilities of the recommended transportation improvement program.

2. EXISTING CONDITIONS

Station Square Development

Station Square is mixed use activity center located along the southwestern shore of the Monongahela River, across from downtown Pittsburgh. The development includes a hotel, an amphitheatre, a number of other buildings housing offices, shops, restaurants and entertainment facilities. One building is located just southeast of the Smithfield Street Bridge and the other buildings are along a relatively level portion of riverfront land located to the northwest. The principal structures and their uses are as follows:

- A six story parking garage with basement providing 1210 parking spaces
- A 14-story hotel and conference center containing 400 guest rooms
- A converted freight house providing for approximately 80,000 sf of restaurant, entertainment, service, and retail uses
- A 65,500 sf building complex providing restaurant, bar, tavern, and café uses
- A seven story building providing 41,000 sf of restaurant, retail, and entertainment uses on the first floor and 330,000 sf of office space on the upper floors
- A three-story, 9,900 sf restaurant
- A seven story building providing approximately 15,000 sf of restaurants on the lower levels and 65,000 sf of office use on the upper levels
- A six-story building with 28,000 sf of office space
- A 58,000 sf single story building (east of the bridge) housing restaurant and entertainment establishments

In addition to the principal buildings, the development includes an amphitheatre and two surface parking areas with the following characteristics:

- Amphitheatre tent space – approximately 37,500 sf
- Amphitheatre support facilities (vendor space, restrooms, management offices etc.) – 52,500 sf
- Western parking lot – 1390 spaces for general public use, Gateway Clipper fleet tour patrons, amphitheatre patrons, hotel guests and lease holders

- Eastern parking lot – 1184 spaces for general public use including approximately 300 lease holders

Station Square development extends approximately 4500 feet from the amphitheatre area at the west end to the parking spaces in the lots at the eastern end of the complex. This length contains the previously listed buildings and parking facilities. This area is approximately 600 feet wide at its widest point.

Approximately 2000-feet of additional property exists west of the amphitheatre. This area contains the western access roadway and parking at the bottom of the Duquesne Incline. Thus, Station Square property extends a total length approximately 6500 feet (1.3 miles).

Available Transportation Modes

The Station Square area is currently served by many different transportation modes that 12 transportation options for patrons, guests and employees. These include an arterial roadway system for auto and truck service, three modes of public transit, private tour and charter buses, private shuttle bus service to the downtown, public and commercial boat facilities, and pedestrian and bicycle facilities along the riverfront.

Roadway System

The Station Square complex is adjacent to and primarily served by Carson Street (PA 837). Smithfield Street separates the eastern portion of Station Square that contains 58,000 sf building with restaurants and night clubs and 1284-space parking lot from the rest of the complex. West Carson Street is located west of Smithfield Street and East Carson Street is east of Smithfield Street.

Station Square is served by five vehicular access points, four entrance / exits and one entrance only:

- The western entrance / exit intersects Carson Street at a signalized intersection approximately 4000 feet northwest of the existing Station Square parking garage. This location is approximately 1900 feet northwest of the ramps to and from the Fort Pitt Bridge which caries Interstate 279 and US Routes 22 and 30 across the Monongahela River. Connections to Pennsylvania Routes 51, 60 and 65 can be made at the south end (PA 51 and PA 60) and the north end (PA 65) of the West End Bridge just 2800 feet northwest of this entrance / exit intersection. Carson Street is two lanes in each direction with a southeast bound left turn lane at this location.
- Two access driveways are located adjacent to the existing parking garage, one to the southeast (Commerce Drive) and one to the northwest (unnamed). Both intersect with Carson Street, which has two lanes in each direction in this area with a left turn lane at Commerce Drive. The location west of the garage is stop sign controlled for the exit, while the intersection east of the garage is controlled by a traffic signal.

- The east access driveway is part of the East Carson Street/Arlington Avenue/ Busway intersection. Carson Street has four lanes on the northwest side of the intersection and three lanes on the southeast side. Arlington Avenue has three lanes, two approaching the intersection and one leaving. The Busway is a single lane approach roadway opposite the Station Square entrance / exit.
- The entrance only driveway is on Smithfield Street and is only accessible from the southbound lanes. This segment of Smithfield Street is just south of the Smithfield Street Bridge. The Smithfield Street Bridge provides for three lanes of traffic flow. During most time periods the bridge operates as two lanes southbound (from the Downtown toward the Station Square area) and one lane northbound. During weekday morning peak periods, the center lane of the bridge becomes a northbound bus only roadway. On the north side of this bridge the local roadway, Fort Pitt Boulevard, connects to Interstate 376. This roadway also carries two US routes, US 22 and US 30. The ramps to and from Interstate 376 are approximately one-half mile from Station Square. Reversible lane signs are provided to facilitate the lane changes.

Station Square Drive generally parallels Carson Street within the Station Square complex. It provides connections to the parking lots, the parking garage, valet parking stations, and drop off and pick up locations within the Station Square development. From the western entrance / exit to the eastern entrance /exit, the internal roadway system consists of the western access roadway, Station Square Drive, and the eastern access roadway. This internal roadway system extends approximately 1.3 miles.

Public Transit

Three modes of public transit serve the Station Square area, incline railroads, Port Authority buses, and a light rail transit line.

The incline railroads include the Duquesne Incline and the Monongahela Incline. Both serve commuter and tourist functions. The Duquesne Incline is located 500 feet east of the western Station Square entrance. It connects the West Carson Street area west of the Fort Pitt Bridge with Grandview Avenue. From the base of the Duquesne Incline to the existing amphitheatre area in the Station Square complex is approximately 2500 feet; to the hotel in Station Square the distance is approximately 3500 feet. The top of the incline provides for

access to restaurants and scenic overlooks. The Duquesne Incline is operated by the Society for the Preservation of the Duquesne Heights Incline. It currently operates Monday through Saturday from 5:30 AM to 12:45 AM and on Sundays and Holidays from 7:00 AM to 12:45 AM. The Monongahela Incline is located less than 400 feet west of the intersection of Carson Street with Smithfield Street, across the street from the existing Station Square restaurant, retail, and entertainment facilities. It connects this center of entertainment, retail and transportation activities with Grandview Avenue. From the base of the Monongahela Incline to the hotel in Station Square the walking distance is approximately 1300 feet. The top of the incline provide for access to restaurants and scenic overlooks. The Port Authority of Allegheny County operates the Monongahela Incline. The incline currently operates Monday through Saturday from 5:30 AM to 12:45 AM and on Sundays and Holidays from 8:45 AM to 12:45 AM.

The Port Authority of Allegheny County bus service in the area consists of fourteen routes that serve approximately 73,000 riders on a typical weekday:

- 41A Pioneer Avenue – Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Brookline section of the City of Pittsburgh, Baldwin and Castle Shannon
- 41B Bower Hill - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Brookline section of the City of Pittsburgh, Dormont, Mt. Lebanon, Bridgeville, and Upper St. Clair
- 41D Brookline - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Brookline, East Brookline, and Ebenshire Village sections of the City of Pittsburgh
- 41E Mt. Washington - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Mt. Washington section of the City of Pittsburgh
- 41G Dormont - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Brookline section of the City of Pittsburgh, Dormont, Mt. Lebanon and Baldwin
- 46A Brentwood - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Overbrook section of the City of Pittsburgh, Brentwood, Whitehall and Baldwin
- BR Brentwood Flier - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Overbrook section of the City of Pittsburgh, Brentwood, Whitehall and Baldwin

- 46D Curry - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Overbrook section of the City of Pittsburgh, Brentwood, and Whitehall
- 46F Baldwin Highlands - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Overbrook section of the City of Pittsburgh, Brentwood, Whitehall and Baldwin
- 46H Pleasant Hills - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Overbrook section of the City of Pittsburgh, and Pleasant Hills
- JL Jefferson-Large - Uses Smithfield Street and the transit tunnel to connect the CBD and Station Square area with the Overbrook section of the City of Pittsburgh, Jefferson Borough and Large
- 46K Beltzhoover-Knoxville - Uses Smithfield Street and East Carson Street or Smithfield Street and the transit tunnel (depending on the time of day) to connect the CBD and Station Square area with the Beltzhoover and Knoxsville sections of the City of Pittsburgh
- 51A Arlington Heights - Uses Smithfield Street and East Carson Street to connect the CBD and Station Square area with Mt. Oliver and the South Side, Arlington Heights, Allentown, and Beltzhoover sections of the City of Pittsburgh
- 51C Carrick - Uses Smithfield Street and East Carson Street to connect the CBD and Station Square area with the South Side and Carrick sections of the City of Pittsburgh, Mt. Oliver, Brentwood, Whitehall and Pleasant Hills

The Port Authority of Allegheny County has a major light rail transit station serving the area. It is located just southeast of the Smithfield Street / Carson Street Intersection. This station is served by three light rail transit lines that carry approximately 27,000 riders on a typical weekday:

- 42S South Hills Village via Beechview – Connects the CBD and Station Square station with the Beechview area of the City of Pittsburgh, Dormont, Mt. Lebanon, Castle Shannon, Bethel Park, and Upper St. Clair
- 47L Library - Connects the CBD and Station Square station with the Beltzhoover, Bon Air, and Overbrook areas of the City of Pittsburgh, Castle Shannon, Bethel Park, and Library
- 47S South Hills Village via Overbrook - Connects the CBD and Station Square station with the Beltzhoover, Bon Air, and Overbrook areas of the City of Pittsburgh, Castle Shannon, Bethel Park, and Upper St. Clair

Private Shuttle Bus Service

Complimentary bus shuttle service is provided between the Sheraton Hotel at Station Square and the downtown area. Shuttle buses with 22-passenger capacity currently operate during the weekday AM and PM commuter peak periods. These shuttle buses provide service between the Station Square parking facilities and downtown locations along a set route. In addition, other shuttle routes have been implemented on a trial basis. Coach USA has provided scheduled service between Station Square and Southside Works on Thursdays through Sundays.

Public and Commercial Boat Facilities

Station Square has three important water transportation components, the Gateway Clipper Fleet, public dock facilities, and water taxi service. The fleet, with six riverboats provides touring and shuttle services. Touring services include dinner dance cruises, sightseeing, one-day vacations, and charter cruises. Shuttle services are provided between Station Square and the North Shore locations of PNC Park and Heinz Field for Pittsburgh Pirate, Pittsburgh Steeler, and Pitt Panther home games. The Gateway Clipper Fleet docks are north of the Sheraton Hotel.

The public dock facility is located just northwest of the Smithfield Street Bridge. Access is provided directly into the center of Station Square. The pay-by-the-hour public boat dock facility has 47 slips with electrical hook-ups. A 200-by-35 foot barge landing provides space for large boats and water taxi service. For 2006, water taxi service is planned for weekends of major events such as the Pittsburgh regatta, July Fourth fireworks, and the Major League All-Star baseball game.

Pedestrian and Bicycle Travel

The Station Square topography is relatively level with the South Side of the City of Pittsburgh to the east and with the downtown area to the north. The Smithfield Street Bridge connection from Station Square to the downtown area is relatively level and very conducive to pedestrian and bicycle travel especially during good weather conditions. Both the Smithfield Street Bridge and the Fort Pitt Bridge, which is located over the Station Square property, have sidewalks and stairways to serve the pedestrian travel. Sidewalks are also located along Carson Street and the access roadways leading to the major restaurant, entertainment, and retail buildings. Also in this area, a bicycle / walking trail exists along the Ohio and Monongahela Rivers. It passes through the Station Square area between the buildings and the river. Bicycle racks are provided at a number of locations within the Station Square development. The primary pedestrian and bicycle travel to Station Square is generated by the following areas:

- The residential sections of the South Side area, one-half to two miles away
- The residential sections of the Duquesne Heights and Mt. Washington areas using one of the inclines as part of the trip
- To and from the sports stadiums located in the North Shore area using boat service as part of the trip
- Downtown Pittsburgh
- Use of the Three Rivers Heritage Trail to and through Station Square. The Three Rivers Heritage Trail begins at Washington's landing, a residential / office development two miles up the Allegheny River from the City of Pittsburgh CBD. It follows the Allegheny and Ohio Rivers downstream past the sports stadiums and Carnegie Science Center. It crosses the Ohio River and then goes upriver through Station Square to the Southside Riverfront Park.
- A proposal is being considered to connect Station Square to the Downtown with a new pedestrian bridge.

Tour and Charter Buses

Tour and charter buses currently drop off and pick up patrons at Station Square to allow them to shop, visit the restaurants and attend conferences or special events. During periods of low activity, 10 to 20 trips occur on weekdays. During a very active day when one or more special events are scheduled, 30 to 35 charter / tour bus trips occur.

Daily Traffic

Automatic traffic recorder counts were taken on West Carson Street eastbound from Thursday December 1, 2005 to Thursday December 8, 2005. The westbound direction was counted from Thursday December 1, 2005 through Saturday December 3, 2005. The counts were taken just west of Commerce Drive. A summary of these counts follows:

Day	Direction	Volume
Tuesday	Eastbound	6,175
Wednesday	Eastbound	6,311
Friday	Eastbound	7,026
Friday	Westbound	8,858
Saturday	Eastbound	5,369
Saturday	Westbound	6,199
Sunday	Eastbound	3,657

- The highest peak-hour eastbound traffic volume was 606; this occurred on Thursday 12/08/05 from 8:15 AM to 9:15 AM

- The highest peak-hour westbound traffic volume was 998; this occurred on Thursday 12/1/05 from 4:30 PM to 5:30 PM
- The highest peak-hour traffic volume on Saturday was 486; this occurred in the eastbound direction from 5:45 PM to 6:45 PM

Weekday PM Peak-hour Traffic

Peak-period turning movement counts were taken at four study area intersections on Wednesday September 30, 2004 and at one intersection on Thursday December 1, 2005. Counts were taken from 3:30 PM to 5:30 PM with traffic volumes summarized in 15-minute intervals. The roadway connection to West Carson Street to the west of the parking garage was closed during all of the weekday count periods. A brief summary of the count information for each intersection follows.

Station Square Access Road at West Carson Street (Western Entrance / Exit)

- Peak Hour: 4:30 PM to 5:30 PM
- Peak-hour usage: 2897 vehicles
- Greatest peak-hour approach volume: 1508 vehicles, West Carson Street westbound
- Greatest peak-hour minor approach volume: 233 vehicles, Station Square exit

Commerce Drive at West Carson Street

- Peak Hour: 4:30 PM to 5:30 PM
- Peak-hour usage: 1717 vehicles
- Greatest peak-hour approach volume: 936 vehicles, West Carson Street westbound
- Greatest peak-hour minor approach volume: 349 vehicles, Commerce Drive exit from Station Square

Smithfield Street / Port Authority Access at Carson Street

- Peak Hour: 4:30 PM to 5:30 PM
- Peak-hour usage: 2287 vehicles
- Greatest peak-hour approach volume: 889 vehicles, East Carson Street westbound
- Greatest peak-hour minor-street approach volume: 746 vehicles, Smithfield Street approach

East Station Square Dr. / Arlington Ave. / Port Authority Busway at East Carson St.

- Peak Hour: 4:15 PM to 5:15 PM
- Peak-hour usage: 2234 vehicles
- Greatest peak-hour approach volume: 945 vehicles, East Carson Street eastbound
- Greatest peak-hour minor-street approach volume: 272 vehicles, Arlington Avenue approach
- Station Square exit peak-hour approach volume: 234 vehicles

Smithfield Street ramp / Valet Drive at West Station Square Drive

- Peak Hour: 4:30 PM to 5:30 PM
- Peak-hour usage: 226 vehicles
- Greatest peak-hour approach volume: 106 vehicles, West Station Square Drive westbound
- Greatest peak-hour minor-street approach volume: 82 vehicles, Smithfield Street ramp approach

Saturday Evening Peak-hour Traffic

Peak-period turning movement counts were taken at four study area intersections on Saturday December 4, 2004 and at one intersection on Saturday December 10, 2005. Counts were taken from 5:00 PM to 10:00 PM with traffic volumes summarized in 15-minute intervals. The roadway connection to West Carson Street to the west of the parking garage was closed during all of the Saturday count periods. A brief summary of the count information for each intersection follows.

Station Square Access Road at West Carson Street (Western Entrance / Exit)

- Peak Hour: 5:30 PM to 6:30 PM
- Peak-hour usage: 1549 vehicles
- Greatest peak-hour approach volume: 992 vehicles, West Carson Street eastbound
- Greatest peak-hour minor approach volume: 25 vehicles, Station Square exit

Commerce Drive at West Carson Street

- Peak Hour: 5:45 PM to 6:45 PM
- Peak-hour usage: 1073 vehicles
- Greatest peak-hour approach volume: 553 vehicles, West Carson Street westbound
- Greatest peak-hour minor approach volume: 151 vehicles, Commerce Drive exit from Station Square

Smithfield Street / Port Authority Access at Carson Street

- Peak Hour: 5:45 PM to 6:45 PM
- Peak-hour usage: 1275 vehicles
- Greatest peak-hour approach volume: 551 vehicles, East Carson Street westbound
- Greatest peak-hour minor-street approach volume: 283 vehicles, Smithfield Street approach

East Station Square Dr. / Arlington Ave. / Port Authority Busway at East Carson St.

- Peak Hour: 5:00 PM to 6:00 PM
- Peak-hour usage: 1334 vehicles
- Greatest peak-hour approach volume: 553 vehicles, East Carson Street eastbound
- Greatest peak-hour minor-street approach volume: 264 vehicles, Arlington Avenue approach

- Station Square exit peak-hour approach volume: 117 vehicles

Smithfield Street ramp / Valet Drive at West Station Square Drive

- Peak Hour: 5:45 PM to 6:45 PM
- Peak-hour usage: 483 vehicles
- Greatest peak-hour approach volume: 285 vehicles, Smithfield Street ramp approach
- West Station Square Drive approaches: 99 westbound and 99 eastbound

Existing traffic volumes are shown on Figure 2. Traffic count summaries can be found in Appendix A.

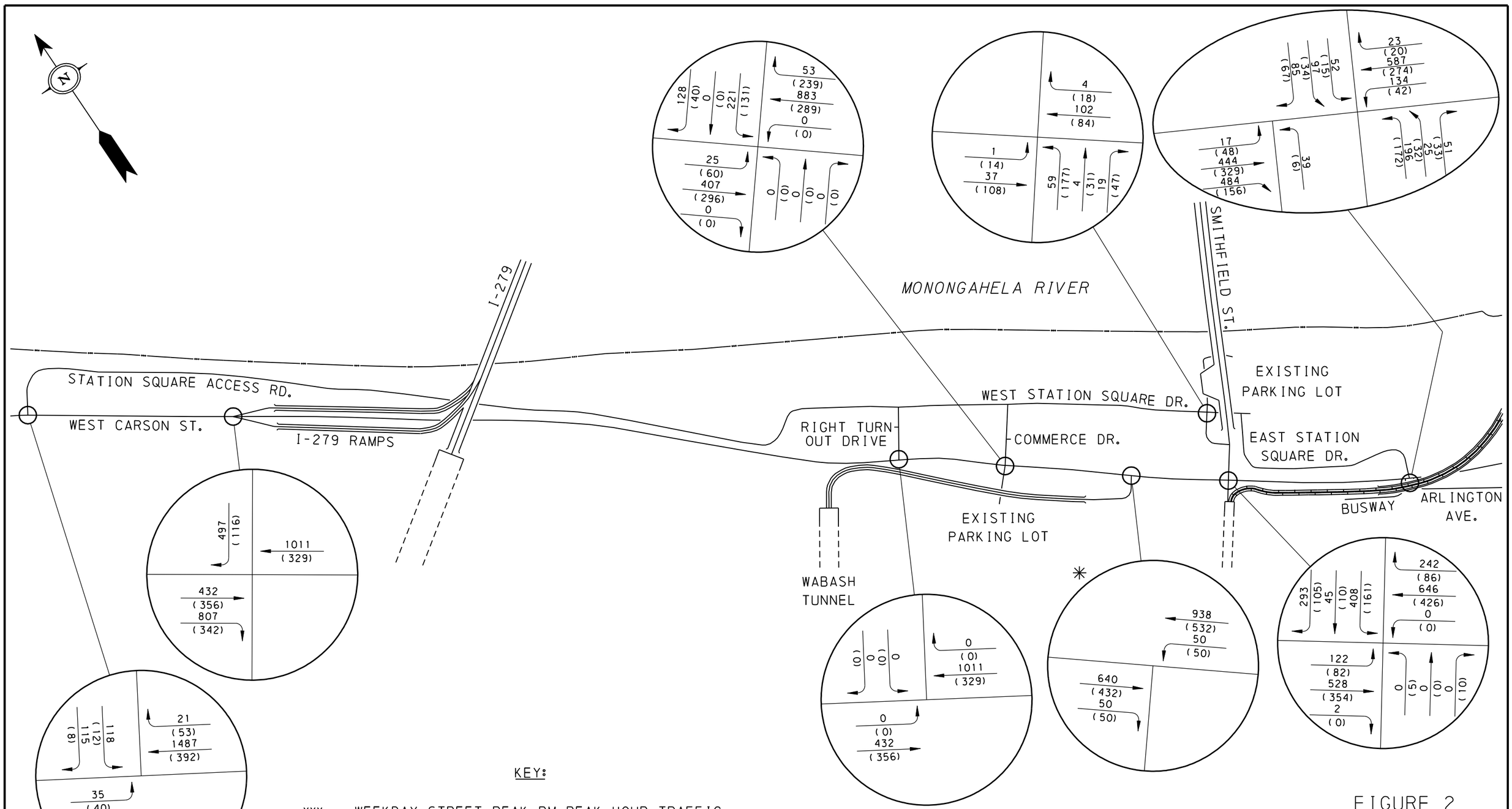
Existing Traffic Conditions

Synchro traffic simulation software analyses were conducted for existing conditions, considering two time periods:

- Existing conditions with 2004 traffic, weekday PM peak-hour conditions
- Existing conditions with 2004 traffic during the anticipated Saturday gaming peak hour of 6:00 PM to 7:00 PM

The traffic volumes for existing conditions along Carson Street were based on the weekday intersection turning movement counts taken in September, an above average month for urban arterials, and on December counts for the Saturday conditions, the peak month for Station Square activity. Both the weekday and the Saturday counts for the intersection of Station Square Drive at the Smithfield Street ramp were counted in December, the peak month for Station Square activity.

Analysis results for 2004 existing conditions indicate that the study area intersections operate within acceptable levels of service, (LOS) A through D range for the periods analyzed. The best operation is LOS A at the West Station Square Drive / Smithfield Street Ramp intersection. The Busway / Arlington Avenue / East Station Square Drive at East Carson Street intersection operates at LOS D with all approaches at LOS D during weekday PM peak hours.



KEY:

XXX - WEEKDAY STREET PEAK PM PEAK-HOUR TRAFFIC (PEAK HOURS VARY BY INTERSECTION)

(XXX) - SATURDAY 6:00 PM TO 7:00 PM (FUTURE GAMING PEAK-HOUR) TRAFFIC

✳ - CONSERVATIVE APPROXIMATION BASED ON ADJACENT INTERSECTION COUNTS

FIGURE 2

gai consultants

2004 EXISTING WEEKDAY STREET PEAK-HOUR AND SATURDAY 6:00 PM TO 7:00 PM TRAFFIC VOLUMES

HARRAH'S STATION SQUARE

DWN. R.A.K. CHKD. M.S.G.

APPD. _____ DATE _____

SCALE: NOT TO SCALE

DRAWING NUMBER 2005-619-11-T-B002 REV

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Level-of-service results are summarized in the following tables.

Table 1
Existing Peak Hour Unsignalized Intersection Level of Service

Location		Weekday 5 - 6 PM Conditions	Saturday 6 – 7 PM Conditions
Ramp from Smithfield Street and West Station Square Drive	NB	A	B
	EB	A	A
	WB	A	A
	Total		**-**

Table 2
Existing Peak Hour Signalized Intersection Level of Service

Location		Weekday 5 - 6 PM Conditions	Saturday 6 – 7 PM Conditions
West Carson Street and Station Square Access Road	EB	A	A
	WB	B	A
	SB	D	D
	Total	**B**	**A**
West Carson Street and Commerce Drive/Parking Lot	EB	A	A
	WB	B	B
	NB	A	A
	SB	C	C
	Total	**B**	**B**
West Carson Street and Wabash Tunnel	EB	A	A
	WB	A	A
	Total	**A**	**A**
Carson Street and Smithfield Street/Port Authority Access	EB	C	A
	WB	C	A
	NB	A	B
	SB	C	B
	Total	**C**	**A**
East Carson Street and Busway/Arlington Avenue/ East Station Square Drive	EB	D	B
	WB	D	B
	NEB	D	D
	NWB	D	C
	SB	D	C
	Total	**D**	**C**

Parking Space Occupancy

Station Square currently has approximately 3800 parking spaces located within the development in three separate areas. The surface lots east of Smithfield Street contain 1185 parking spaces with 885 available to the general public at all times and 300 reserved during certain periods for valet parking operations at the Landmark Building Restaurants.

The parking garage central to the development has 1210 parking spaces on six levels that are available to the general public based upon hourly and monthly rates. Spaces within garage are occasionally blocked off for functions at the Sheraton Hotel and Conference Center. The remaining 1390 parking spaces are located in surface parking lots at the west end of the development.

These are special purpose lots that serve the Sheraton Hotel, Station Square employees, the Gateway Clipper Fleet, events at the Amphitheater and events at Heinz Field (e.g. Steelers' home football games). All of these spaces are controlled by barriers and gate systems with appropriate parking fees charged to users.

Parking transaction information at Station Square was reviewed for 11 months from December, 2004 through October, 2005 to identify the existing numbers of parkers, parking space occupancies and peak parking periods. The monthly variation in parking space use listed below indicates that December and October had the highest numbers of parkers followed by the summer and fall months. October which is the second highest month at 112% of average was selected as the design month for this analysis.

Station Square Parking Space Utilization

Month / Year	*Monthly Parkers*[1]
December / 2004	112%
January / 2005	81%
February / 2005	85%
March / 2005	92%
April / 2005	96%
May / 2005	108%
June / 2005	110%
July / 2005	102%
August / 2005	100%
September / 2005	102%
October / 2005	112%

NOTE:
1. Monthly parkers expressed as a percentage of the average monthly parkers for the 11 months ending November 1, 2005.

Three days during October, 2005 were selected as parking survey days. The highest parking count on a weekday (excluding Friday) occurred on Wednesday, October 19. The highest parking counts on a Friday and Saturday occurred on Friday, October 14 and Saturday, October 15. The numbers of parkers and peak parking space occupancies on those design days are listed below:

Day		*Daily Parkers*	*Peak Occupied Spaces*	*Available Spaces*
Wednesday,	October 19	3240	1330 (1:00 PM)	2455 (65%)
Friday,	October 14	4750	1660 (8:30 PM)	2125 (56%)
Saturday,	October 15	5620	1975 (8:30 PM)	1810 (48%)

This parking information shows that peak parking space occupancies occur during midday on weekdays (Monday – Thursday) and during the evening hours on weekends (Fridays and Saturdays). This pattern reflects the patron draw of the many restaurants and night clubs at Station Square. The information also shows that many of the existing parking spaces at Station Square remain unoccupied and available on busy days. Most of the available spaces are located in the west parking lots which are designated for special functions, such as conferences at the hotel, events at the amphitheater and Heinz Field. These are the parking spaces that will be replaced by the Casino and the new parking garage.

3. TRANSPORTATION CHARACTERISTICS OF THE CASINO

A key part of this analysis was determining the transportation characteristics of the Casino, including trip generation, mode split, vehicle occupancy, directional distribution, and parking space needs. These determinations were made utilizing information available from ITE research, Harrah's Casino operations, surveys at existing Station Square and trip distribution information provided by the City of Pittsburgh. These characteristics are described in this section.

Proposed Development Program

The proposed development program is to include a Casino with 4000 slot machines and related retail, restaurant and operations space. The current plan is to start with 3000 slot machines and expand later to the ultimate 4000 machines. The transportation characteristics for the Casino were based upon the ultimate development with 4000 slot machines. The Casino is to be located immediately west of the existing Sheraton Hotel and Conference Center.

This development program will be supported by approximately 3100 parking spaces located in two separate parking facilities. One facility with approximately 600 parking spaces will be under the Casino. These spaces will primarily be for valet parking operations at the Casino. The other facility will contain approximately 2500 parking spaces and will be located west of the Casino where the Amphitheater and surface parking lots are currently located. These spaces will be for Casino patrons as well as those destined to other activities within Station Square. The net increase in the number of parking spaces at Station Square will be from the current 3785 spaces to a future 5600 spaces. The current peak parking space occupancies at Station Square on days without an event at the Amphitheater occur on Saturday evenings and utilize approximately 2000 parking spaces. The proposed parking facilities will achieve capacity for approximately 5600 parked vehicles.

To serve this development program, the five existing access driveways at Station Square are being redesigned and two new access driveways are added. The existing main access driveway on Commerce Drive is being redesigned as a primary exit with three exiting lanes. The existing driveway west of the central parking garage is being redesigned as a primary entrance with three entering lanes. The two new access driveways will be located on Carson Street west of these driveways. One new driveway will be located approximately 1000 feet west of Commerce Drive will function exclusively as an exit from the valet parking (800 spaces). This driveway is anticipated to need traffic signal control. The second new access driveway will be located approximately 1500 feet west of Commerce Drive and will serve only inbound traffic movements to the new parking structure. All exiting traffic from this garage will be directed to the west driveway which already has traffic signal control.

Trip Generation Estimates

Our determination of new trips for the Casino considered the capture of existing trips generated by Station Square. Existing development at Station Square includes 30 retail shops, 25 restaurants and night clubs, 400 hotel rooms and related meeting/banquet facilities, office space and the Gateway Clipper fleet docks. Based upon parking transactions and vehicle

occupancy surveys, it is estimated that Station Square currently generates approximately 2.5 million visitors per year, 10,000 daily visitors on a peak weekday and 15,000 visitors on a peak weekend day (Saturday). Many of these current visitors will be attracted to extend their stays and visit the Casino as part of their activities at Station Square. The internal capture information developed by the Institute of Transportation Engineers (ITE) indicates ranges of 25 to 40 percent of interaction within mixed-use retail development projects. Given the compatibility for the Casino with the existing restaurant and night club uses, this interaction is expected to be significant. However, to preserve the conservative nature of this traffic analysis, it was assumed that only 20 percent of existing trips will visit the new Casino.

Harrah's Station Square Casino is expected to be highly successful and to draw a significant number of patrons. For design purposes, it was assumed that the casino will generate 24,000 patrons on a design weekday and 40,000 patrons on a design Saturday. Based upon the hourly inbound, outbound and accumulation information available from ITE reports about casinos, these daily trips were converted to peak hour trips and peak accumulations of patrons. The calculations are listed below:

Patrons

	Inbound	Outbound	Accumulation
Design Weekday (5:00 – 6:00 PM)	**5.90%**	**6.60%**	
	1416	**1584**	
Design Weekday (8:30 PM)			**16.7%**
			4008
Design Saturday (6:00 – 7:00 PM)	**7.80%**	**6.90%**	
	3120	**2760**	**18.2%**
Design Saturday (8:30 PM)			**7280**

New Patrons

	Inbound	Outbound	Accumulation
Design Weekday (Peak Hour)			
Casino Patrons	**1416**	**1584**	**4008**
- Internal Capture	**- 118**	**- 132**	**- 334**
	1298	**1452**	**3674**
Design Saturday (Peak Hour)			
Casino Patrons	**3120**	**2760**	**7280**
- Internal Capture	**- 234**	**- 207**	**- 546**
	2886	**2553**	**6734**

Based upon standard operating procedures employed by Harrah's, they anticipate the need for 1,800 to 2,200 daily employees spread among three shifts. The shifts are staggered over several hours to facilitate staff changes, to minimize disruptions to patrons and to spread out employee arrivals and departures. The typical employee shift schedule listed below identifies the peak numbers of employees at the casino during every hourly period. The peak employee counts range from 700 on weekdays to 900 on weekends. On weekdays the employee shift changes overlap with the commuter peak hour, 5:00 to 6:00 p.m., and contribute to the peak hour trip generation. On Saturdays, the shift change occurs prior to the peak gaming hour at 6:00 – 7:00 p.m. and does not contribute to those trip generations. The arrival and departure of employees during the design hours are listed below.

Employee Trips

			Design Weekday		**Design Saturday**	
Total Daily Casino Employees			**1,800**		**2,200**	
Highest Shift of Casino Employees			**700**		**900**	
Schedule			Inbound	Outbound	Inbound	Outbound
7:00 A	7:30 A		100	100	100	150
7:30 A	8:00 A		150	200	200	200
8:00 A	8:30 A		150	200	200	200
8:30 A	9:00 A		100	100	100	150
		Shift Total	**500**	**600**	**600**	**700**
3:30 P	4:00 P		150	100	200	100
4:00 P	4:30 P		200	150	250	200
4:30 P	5:00 P		200	150	250	200
5:00 P	5:30 P		150	100	200	100
		Shift Total	**700**	**500**	**900**	**600**
11:30 P	12:00 M		100	150	150	200
12:00 M	12:30 A		200	200	200	250
12:30 A	1:00 A		200	200	200	250
1:00 A	1:30 A		100	150	150	200
		Shift Total	**600**	**700**	**700**	**900**
		Daily Total	**1,800**	**1,800**	**2,200**	**2,200**
Peak Hour Employee Trips			4:30 PM - 5:30 PM		6:00 PM - 7:00 PM	
			350	**250**	**0**	**0**

Mode Split

The availability of various transportation modes at Station Square was described previously in this report. The primary modes that will be used by patrons and employees of the Casino are the same as used by current patrons and employees at Station Square. It is expected that current patterns of usage will continue with the use of non-auto modes increasing as a result of proposed traffic and parking management practices. Spot counts of pedestrians entering and exiting Station Square verify the current significant use of the Light Rail "T" Station, the public bus system and tour buses. In addition, Harrah's verified the use of tour and charter buses at their existing facilities. The projected mode split for patrons and employees of the Casino is listed below:

Weekday Peak Hour

Patrons by:	**%**	**Inbound**	**Outbound**
Light Rail and Public Bus	15%	**195**	**218**
Tour Bus, Charter Bus and Shuttle	10%	**130**	**145**
Inclines, Boat, Bicycle and Walk	5%	**65**	**73**
By Auto	70%	**909**	**1016**
Employees by:	**%**		
Light Rail and Public Bus	35%	**123**	**88**
Shuttle, Inclines, Bicycle and Walk	15%	**52**	**37**
By Auto	50%	**175**	**125**

Saturday Peak Hour

Patrons by:	**%**	**Inbound**	**Outbound**
Light Rail and Public Bus	15%	**433**	**383**
Tour Bus, Charter Bus and Shuttle	10%	**289**	**255**
Inclines, Boat, Bicycle and Walk	5%	**144**	**128**
By Auto	70%	**2020**	**1787**
Employees by:	**%**		
Light Rail and Public Bus	35%	**0**	**0**
Shuttle, Inclines, Bicycle and Walk	15%	**0**	**0**
By Auto	50%	**0**	**0**

Traffic and parking management practices to be utilized to achieve this modal split are described in a later section of this report.

Vehicle Trip Generation

Surveys were conducted at Station Square to identify current vehicle occupancies for patrons utilizing these parking facilities. These surveys identified average occupation of 2.5 persons per vehicle. No specific surveys were conducted for current employees at Station Square, but it was expected that the employee vehicle occupancies will be much lower and closer to national averages of 1.1 per vehicle. These are the rates selected for use in our analyses. The numbers of new vehicles generated by the Casino were calculated using the characteristics described in this chapter and listed in the table below.

New Vehicle Trip Generation

	Inbound	Outbound	Accumulation
Design Weekday (5:00 – 6:00 PM)			**(8:30 PM)**
New Patrons By Auto	**909**	**1016**	**2544**
Casino Employees By Auto	**175**	**125**	**350**
New Patron Autos	**364**	**406**	**1018**
Tour Buses	**3**	**4**	
Casino Employee Autos	**159**	**114**	**318**
Total New Vehicles	**526**	**524**	**1336**
Design Saturday (6:00 – 7:00 PM)			**(8:30 PM)**
New Patrons By Auto	**2020**	**1787**	**6734**
Casino Employees By Auto	**0**	**0**	**450**
New Patron Autos	**808**	**715**	**2694**
Tour Buses	**7**	**6**	
Casino Employee Autos	**0**	**0**	**409**
Total Vehicles	**815**	**721**	**3103**

Directional Distribution of Casino Trips

Auto trips to and from the proposed casino facility were distributed separately for patrons and for employees. Patron trips were assigned based on driving distance, residential population of counties of origin, location of existing and potential competing facilities, a knowledge of existing travel patterns into and within Allegheny County, and existing roadway travel patterns into and out of the existing Station Square area. Employee trip distribution took into consideration the county of origin information provided by the City of Pittsburgh Planning Department. The County of origin information provided by the City of Pittsburgh is as follows:

- Allegheny County 89.73%
- Armstrong County 0.59%
- Beaver County 1.36%
- Butler County 1.82%

- Washington County 2.24%
- Westmoreland County 2.96%
- External Counties 1.30%

The trip distribution process resulted in the following assignments of auto trips to roadway links leading into and out of the study area for the weekday PM and Saturday PM periods analyzed.

Patrons entering:

- 35% from Smithfield Street
- 29% from West Carson Street
- 23% from the Interstate 279 ramp at the Fort Pitt Bridge
- 7% from Arlington Avenue
- 6% from East Carson Street
- 0% from the Wabash tunnel (outbound only during analysis time periods)

Patrons exiting:

- 35% to Smithfield Street
- 24% to West Carson Street
- 23% to the Interstate 279 ramp at the Fort Pitt Bridge
- 4% to Arlington Avenue
- 6% to East Carson Street
- 8% to the Wabash tunnel

Employees entering:

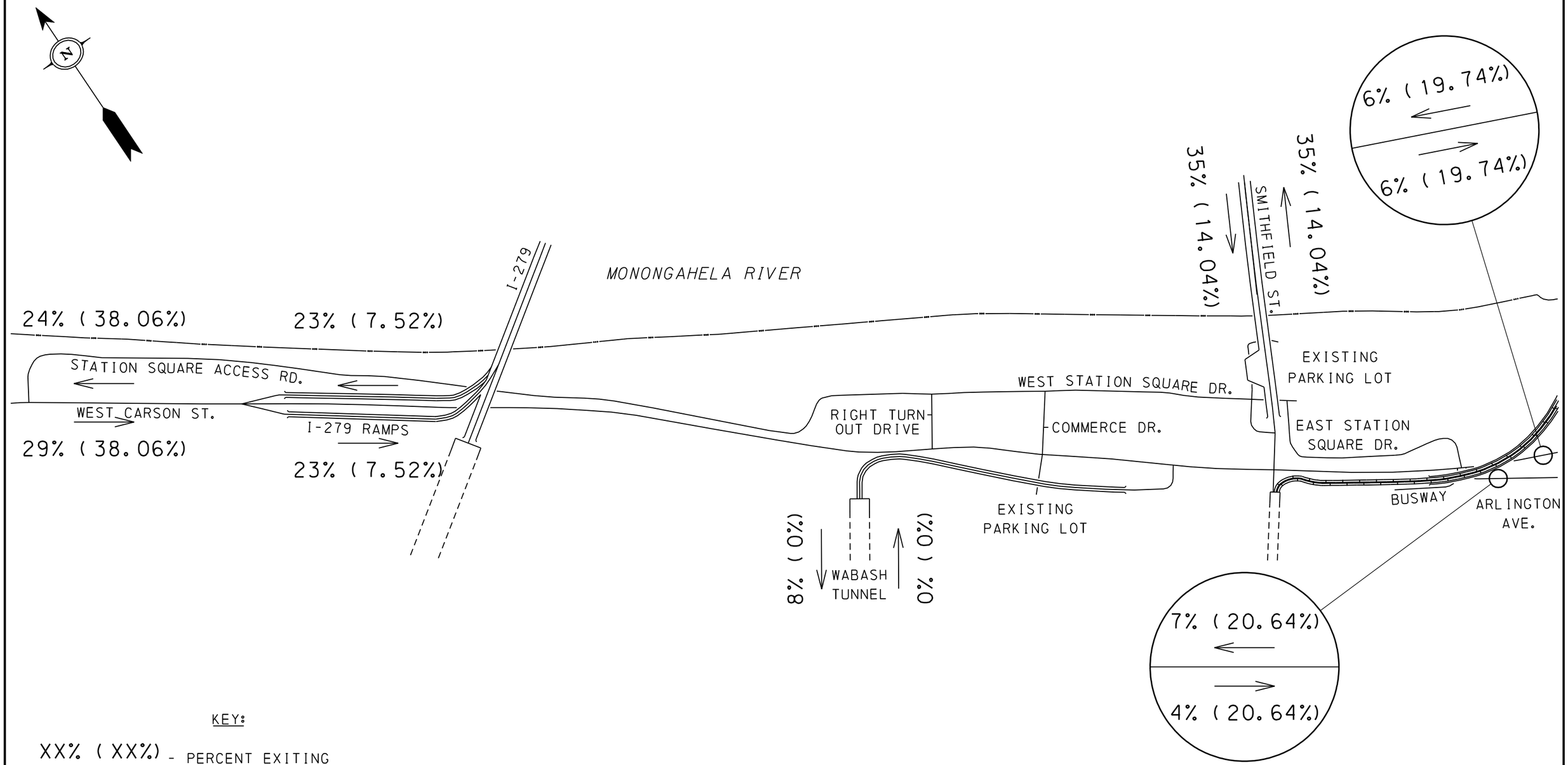
- 14% from Smithfield Street
- 38% from West Carson Street
- 7% from the Interstate 279 ramp at the Fort Pitt Bridge
- 21% from Arlington Avenue
- 20% from East Carson Street
- 0% from the Wabash tunnel (outbound only during analysis time periods)

Employees exiting:

- 14% to Smithfield Street
- 22% to West Carson Street
- 7% to the Interstate 279 ramp at the Fort Pitt Bridge
- 21% to Arlington Avenue
- 20% to East Carson Street
- 16% to the Wabash tunnel

Distribution percentages are shown on Figure 3.

Additional trip distribution detail can be found in Appendix B.



KEY:

XX% (XX%) ← - PERCENT EXITING

——— - EXTERNAL ROADWAY LINK

→ XX% (XX%) - PERCENT ENTERING

XX% = PATRON DISTRIBUTION PERCENTAGE
(XX%) = EMPLOYEE DISTRIBUTION PERCENTAGE

FIGURE 3

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ANTICIPATED PATRON AND EMPLOYEE TRIP DISTRIBUTION PERCENTAGES

HARRAH'S STATION SQUARE

DWN. R.A.K. CHKD. M.S.G.

APPD. _____ DATE _____

SCALE: NOT TO SCALE

DRAWING NUMBER
2005-619-11-T-B003 REV

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Parking Space Requirements

The future parking space requirements for Station Square were determined based upon current usage of the existing parking facilities on peak design days (excluding special events at the Amphitheatre) and the expected peak parking needs of the Casino with 4000 slot machines. In the previous discussion of existing conditions at Station Square, it was identified that the peak occupancy of the parking spaces now occurs on Saturday evenings. This is also expected to be the peak time for parking at the Casino. Our peak parking survey day, which was Saturday, October 15 identified a peak occupancy of 1975 spaces at 8:30 PM. To accommodate this peak, the parking facilities at Station Square should have 2075 spaces, providing 100 spaces (5% surplus factor) to facilitate turnover of spaces and reduce parking space search times.

In our analysis of the trip generation characteristics of the Casino, it was identified that the Casino would generate a peak demand on Saturday evening for approximately 3100 parking spaces, composed of 2700 spaces for patrons and 400 spaces for employees. To accommodate this parking peak, Station Square will require approximately 3250 parking spaces for Casino patrons and employees. This would provide an additional 150 spaces (5% surplus factor) to facilitate the turn over of parking spaces. Thus, the combined parking space requirements for existing Station Square and the proposed Harrah's Station Square Casino are for 5325 parking spaces (2075 + 3250).

The development plans show that Station Square will have a total of 5500 parking spaces, provided in three parking areas.

East Parking Lots	1185 parking spaces
Central Garage	1210 parking spaces
Under Casino	600 parking spaces
New Garage	2500 parking spaces
TOTAL	5495 parking spaces

4. TRANSPORTATION IMPROVEMENT PROGRAM

The transportation improvement program for Station Square includes street widenings and lane additions at key intersections and access driveways, operational upgrades to the traffic control system, grade separation of pedestrian movements over Carson Street, new structured parking facilities, installation of intelligent transportation system (ITS) devices and the implementation of efficient traffic and parking management plans. This improvement program will better serve existing traffic volumes within and adjacent to Station Square and will accommodate the additional traffic generated by the Casino. Each component of the recommended transportation improvement program is described in this section.

Street and Intersection Improvements

The streets and intersections in the study area that serve Station Square will be improved to provide greater capacity and efficiency. The location of these improvements are shown on Figure 4.

1. The existing east access driveway at Arlington Avenue and Carson Street will be widened to accommodate three exit lanes. These lanes will be designated for an exclusive right turn lane and dual left turn lanes, one to eastbound Arlington Avenue and one to eastbound Carson Street. This intersection currently has traffic signal control.

2. The intersection of Carson Street and Smithfield Street will be upgraded with additional traffic lanes and a pedestrian overpass across Carson Street. An exclusive westbound right turn lane will be constructed by widening Carson Street on the north side near the intersection.

An additional southbound right turn lane will be constructed by widening Smithfield Street on the eastside at the intersection. The pedestrian overpass will link Station Square to the “T” Station and the Monongahela Incline Station over Carson Street. This overpass will reduce vehicle-pedestrian conflicts at the intersection and improve intersection capacity.

Figure 4

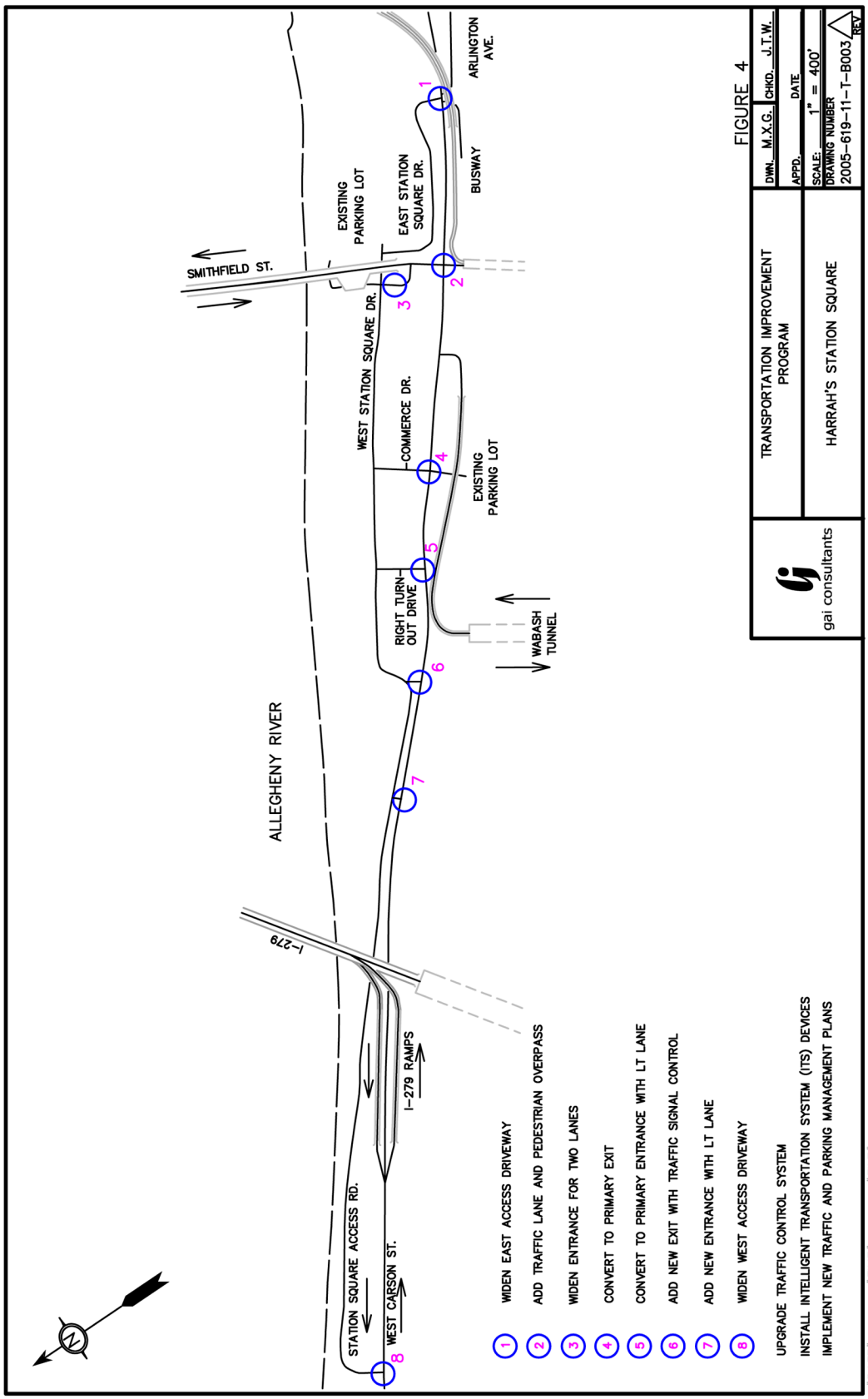


FIGURE 4
TRANSPORTATION IMPROVEMENT PROGRAM
HARRAH'S STATION SQUARE
gai consultants
DWN. M.X.G. CHKD. J.T.W.
APPD. DATE
SCALE: 1" = 400'
DRAWING NUMBER 2005-619-11-T-B003 REV
ARLINGTON AVE.
BUSWAY
EAST STATION SQUARE DR.
EXISTING PARKING LOT
SMITHFIELD ST.
WEST STATION SQUARE DR.
COMMERCE DR.
EXISTING PARKING LOT
RIGHT TURN-OUT DRIVE
WABASH TUNNEL
ALLEGHENY RIVER
I-279
I-279 RAMPS
STATION SQUARE ACCESS RD.
WEST CARSON ST.
1 WIDEN EAST ACCESS DRIVEWAY
2 ADD TRAFFIC LANE AND PEDESTRIAN OVERPASS
3 WIDEN ENTRANCE FOR TWO LANES
4 CONVERT TO PRIMARY EXIT
5 CONVERT TO PRIMARY ENTRANCE WITH LT LANE
6 ADD NEW EXIT WITH TRAFFIC SIGNAL CONTROL
7 ADD NEW ENTRANCE WITH LT LANE
8 WIDEN WEST ACCESS DRIVEWAY
UPGRADE TRAFFIC CONTROL SYSTEM
INSTALL INTELLIGENT TRANSPORTATION SYSTEM (ITS) DEVICES
IMPLEMENT NEW TRAFFIC AND PARKING MANAGEMENT PLANS

3. The existing Station Square entrance only driveway on Smithfield Street will be widened for two lanes at its intersection with Station Square Drive. The additional lane will better accommodate shuttle buses and tour buses that enter at this location. The additional lane will also allow right turning traffic to by-pass vehicles turning left or going straight ahead to the restaurant valet operation.

4. The existing Commerce Street driveway on Carson Street which is controlled by a traffic signal will be modified to primarily serve outbound movements from the existing parking garage. The entrance lanes into the parking garage will be relocated to the west side of the garage to minimize conflicts Commerce Street. The center median in the driveway will be closed and relocated to the east to accommodate a single entry lane and three southbound exit lanes. The single entry lane will provide access to existing Station Square and to the Sheraton Hotel port cochere. The three southbound exit lanes at Carson Street will be designated for an exclusive right turn lane, a combination through/left-turn lane and an exclusive left-turn lane. The traffic signal phasing will be converted to a split phase operation for the northbound and southbound movements.

5. The existing access driveway west of the parking garage will be widened and upgraded to be the primary entrance to the parking garage, to the Gateway Clipper Fleet ramp and to the new Casino port cochere. The driveway will accommodate three northbound entrance lanes and one southbound exit lane. The single exit lane will be restricted to right turn movements. Carson Street will be widened at this intersection to accommodate an eastbound left turn lane.

6. A new exit only driveway will be constructed on Carson Street approximately 1000 feet west of Commerce Street. This driveway will function exclusively as an exit from the Casino Valet and will require traffic signal. The driveway will have two southbound exit lanes, one for right turns and one for left turns.

7. A new entrance only driveway will be constructed on Carson Street approximately 1600 feet west of Commerce Street. This driveway will function exclusively as an entrance to the new casino parking garage. The driveway will have two northbound entry lanes. Carson Street will be widened at this intersection to accommodate an eastbound left turn lane.

8. The existing west access driveway will become the exclusive exit from the new Casino parking garage. The driveway will be reconfigured for one inbound lane and three outbound lanes at Carson Street. The three southbound lanes will be designated for an exclusive right turn lane and dual left turn lanes. This intersection currently has traffic signal control.

Traffic Control System Upgrades

The six (five existing and one proposed) traffic signals along Carson Street in the study area will be interconnected and upgraded to function as a system, providing coordinated operation with progressive traffic movements. This system will permit the implementation of special

timing patterns to coincide with weekday and weekend peak traffic flows at Station Square. The system will provide selection of the appropriate timing patterns based upon the real time traffic flow conditions detected at key locations along Carson Street and at the Station Square access driveways. New traffic detectors will be installed to continuously measure the traffic flow characteristics.

Intelligent Transportation System (ITS) Devices

Intelligent transportation system (ITS) devices will be installed to improve the efficiency and operation of the streets and parking facilities serving Station Square. These ITS devices will include outdoor traffic surveillance cameras and variable message signs that will be installed at key locations within and adjacent to Station Square. These devices will be used to dynamically manage traffic conditions and parking utilization in real time. The devices will also add considerable value to the compliment of equipment used for security and event management. The ITS will gather, process and disseminate information valuable to Station Square visitors and the traveling public. Traffic will be managed to minimize traffic delays and mitigate any traffic impacts to the surrounding community. Traffic and parking information will be provided directly to motorists in route as well as to web applications commonly used for pre-trip planning. The new systems and devices will be operated and monitored at a new traffic management center (TMC) within Station Square.

The traffic surveillance cameras will be located at Station Square access driveways and intersections along Carson Street. They will have full pan, tilt and zoom (PTZ) capability to observe traffic conditions within and adjacent to Station Square. Attendants in the TMC will monitor traffic conditions and notify the proper authorities if traffic incidents occur, if traffic control equipment malfunctions and/or if changes to the traffic signal system patterns are warranted. The attendants will also use this information to change the variable message signs to direct motorists to alternative access driveways and parking locations.

The variable message signs will be installed at key locations on Carson Street and at the entrances to the parking garages. These signs will direct motorists to the appropriate access driveway for the various venues at Station Square, identify valet parking locations, provide information about the availability of parking spaces by facility and level and will change to provide real-time information about traffic and parking conditions. This information will aide motorists in locating the appropriate access driveways and parking locations with minimum circulation and delays.

Traffic Management Plan

The key element of the traffic management plan for Station Square will be utilization of a traffic management center and ITS devices to provide real-time information to patrons and to share this information with appropriate agencies to minimize congestion and delays on the streets, at the driveways and in the parking facilities. Attendants in the TMC will monitor conditions and make decisions about changing the use of driveways, reversing parking control lanes and opening up additional parking booths. The traffic management plan will also include employee

travel programs, designated areas for tour bus and shuttle bus operations and a revised operations schedule for the Wabash Tunnel.

The employee travel program is intended to reduce the number of employees driving alone to work at Station Square. This program will include incentives in the way of subsidies for employees to use transit and to operate car pools and will provide disincentives (e.g. high parking fees) for employees to drive alone. The transit incentive program will provide reduced costs for employees who utilize transit from their homes or other remote parking facilities. Employees participating in the ridesharing program will have lower parking fees and better parking locations.

The current private shuttle bus service between Station Square and Downtown will be expanded with more scheduled trips and extended hours to cover the 24–hour operation of the Casino. The shuttle buses will travel to and from more Downtown destinations including public parking facilities to provide patrons with more opportunities to access Station Square from the Downtown without driving cars or requiring on-site parking spaces.

The pick-up / drop-off functions for tour buses and shuttle buses now occur randomly within Station Square and often result in blocked traffic lanes. The development plan will include designated areas that are properly designed for these functions so that travel lanes can remain open during these activities. The pick-up / drop-off functions will be located convenient to the primary destinations within Station Square.

The Wabash Tunnel is located immediately adjacent to Station Square and represents a major resource for accommodating peak traffic to and from the development. With the average vehicle occupancies at Station Square averaging about 2.5 persons per vehicle, most patrons destined to and from the South will be able to take advantage of this HOV facility. In addition the facility is currently available to all patrons regardless of vehicle occupancies during evening hours and on weekends. To enhance the use of this facility, it is proposed that inbound travel be permitted during additional hours on weekends. The current and proposed hours of operation are listed below:

Current Wabash Tunnel Operation

Direction	Time Period	Days	Use
Inbound	6:00 AM – 2:00 PM	Weekdays	HOV
Outbound	3:00 PM – 7:00 PM	Weekdays	HOV
Outbound	7:00 PM – 5:00 AM	Weekdays	No Restrictions
Outbound	7:00 PM Friday – 5:00 AM	Monday	No Restrictions

Proposed Weekend Wabash Tunnel Operation

Direction	Time Period	Days	Use
Outbound	7:00 PM Friday – 5:00 AM	Saturday	No Restrictions
Inbound	6:00 AM Saturday – 2:00 PM	Saturday	No Restrictions
Outbound	3:00 PM Saturday – 5:00 AM	Sunday	No Restrictions
Inbound	6:00 AM Sunday – 2:00 PM	Sunday	No Restrictions
Outbound	3:00 PM Sunday – 5:00 AM	Monday	No Restrictions

Parking Management Plan

The parking management plan for Station Square will take advantage of technical advances in parking control equipment and implementation of parking policies to improve parking conditions. A key parking system upgrade will be the installation of pay-on-foot kiosks at strategic locations for patrons to pay for parking prior to returning to their vehicles. This system provides patrons with a parking receipt ticket which they insert into the parking control equipment at the exit to raise the gates. The use of this equipment reduces transaction times at the exit gates for patrons from 20 seconds to 5 seconds and increases exiting capacity from 180 vehicles per lane per hour to over 400 vehicles per lane per hour. A parking fee collection booth will still be available in one lane at each exit for those patrons who forget to utilize the remote cashiering machines. These patrons will experience longer waiting times during peak traffic periods because of the cashiering operations for each transaction.

The parking management plan will include a parking rate structure that will encourage high vehicle occupancies and few long term parkers. Parking rates will be the same or higher than they currently are and the hourly rates will increase after 5 hours to discourage long term parking. The rates will be adjusted periodically to best manage the parking system.

As mentioned previously, variable message signs (VMS) will be installed at parking garage entrances to inform motorists about the number of parking spaces that are available and unoccupied in the facility and on which levels these spaces are located. The purpose of these signs is to make the parking space search as efficient as possible, resulting in less circulation and reduced delays.

Performance standards will be established for valet parking operators at Station Square to insure that the proper number of parking attendants are present for peak inbound and outbound traffic flows. The performance standards will be included in contractual agreements identifying the maximum number of vehicles that can be queued waiting for service and the maximum length of time that patrons should wait when retrieving their vehicles. If these performance standards are not met on a regular basis, monetary penalties could be imposed on operators to insure conformance.

5. EVALUATION OF AREA ROADWAY SYSTEM FOR 2008

Synchro traffic simulation software analyses were conducted for two future conditions and two time periods:

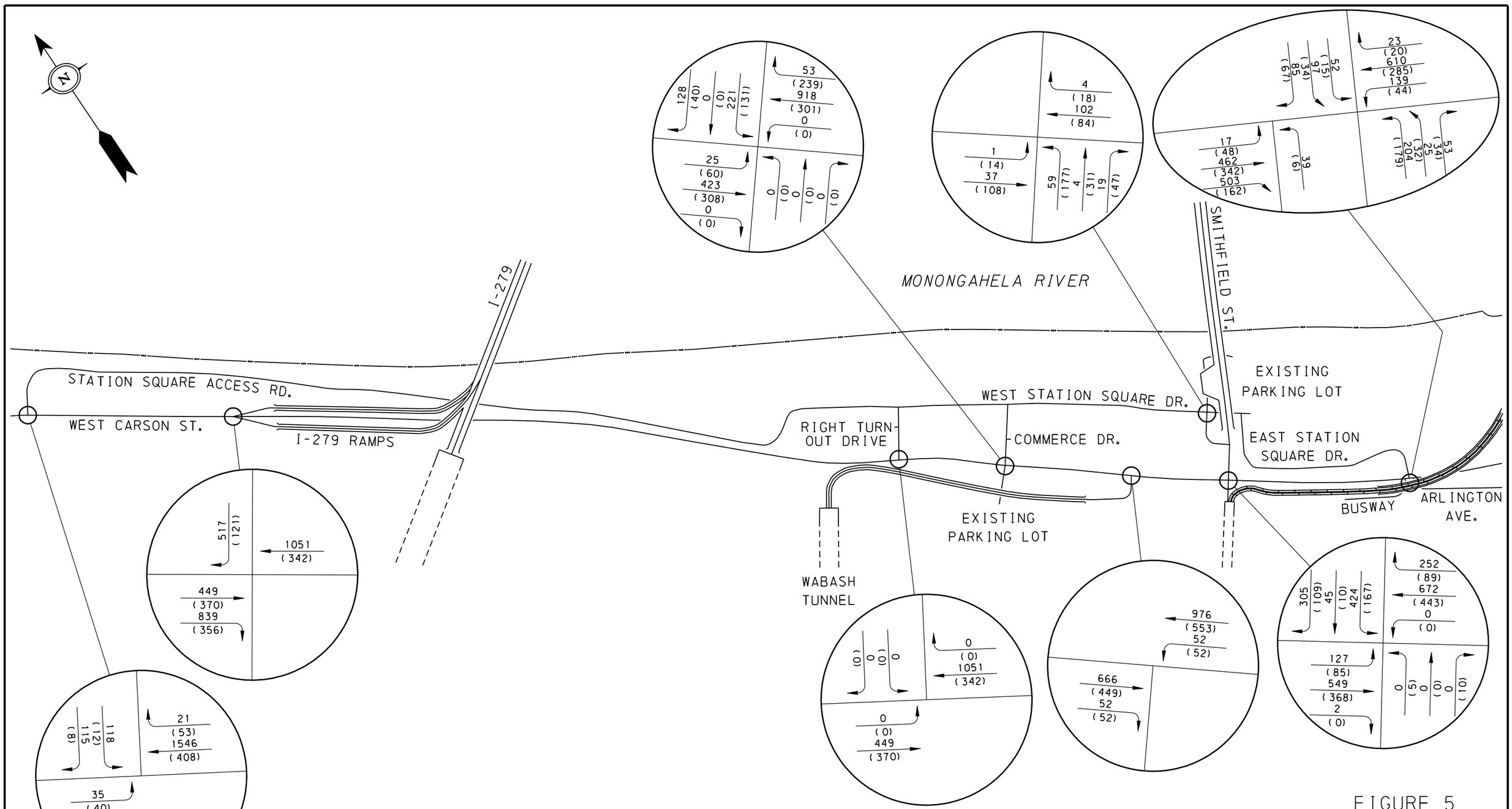
- Proposed Base conditions (with background growth but without the proposed development) for 2008 projected average weekday PM peak-hour conditions
- Proposed Base conditions for 2008 Saturday 6:00 PM to 7:00 PM projected conditions
- Build (with development) conditions with existing roadway and signalization conditions
- Build conditions with roadway and signalization improvements

The base volumes for 2008 were developed by increasing the non-Station Square traffic by one percent per year. The growth percentage was derived after comparing Station Square area counts taken by GAI in the 1980's to the new counts and discussing the results and network projection with staff at the Southwestern Pennsylvania Commission. Base condition traffic volumes are shown on Figure 5. The Build conditions were then developed by adding the development related trips to each intersection for each of the analysis time periods base on anticipated entrance / exit patterns. New trips are shown on Figure 6. Build condition traffic volumes are shown on Figure 7.

Analysis results for 2008 base conditions indicate that the study area intersections are anticipated to operate within acceptable levels of service, (LOS) A through D range for the periods analyzed. The best operation is LOS A for the West Station Square Drive / Smithfield Street Ramp intersection. The Busway / Arlington Avenue / East Station Square Drive at East Carson Street intersection is anticipated to operate at an overall LOS D with the eastbound approach at LOS E during weekday PM peak hours.

Analysis results for 2008 build conditions without improvements indicate that most study area intersections would continue to operate at acceptable levels of service. However, the Busway / Arlington Avenue / East Station Square Drive at East Carson Street intersection will drop to LOS E with the eastbound approach at LOS F during weekday PM peak hours.

Improvements are proposed to mitigate the deterioration of the LOS at study area intersections and provide acceptable LOS at new entrance / exit intersections. These improvements were presented in the previous section describing the transportation improvement program. Analysis results for 2008 build conditions with the previously indicated roadway and signalization improvements indicate that the study area intersections would operate within acceptable levels of service, (LOS) A through D range for the periods analyzed. The best operation is LOS A for the West Station Square Drive / Smithfield Street Ramp intersection. The Busway / Arlington Avenue / East Station Square Drive at East Carson Street intersection is anticipated to operate at LOS D with all approaches at LOS D during weekday PM peak hours.



KEY:

xxx - WEEKDAY STREET PEAK PM PEAK-HOUR TRAFFIC

(xxx) - SATURDAY 6:00 PM TO 7:00 PM TRAFFIC

FIGURE 5

gai consultants

2008 BASE WEEKDAY STREET PEAK-HOUR AND SATURDAY 6:00 PM TO 7:00 PM TRAFFIC VOLUMES

HARRAH'S STATION SQUARE

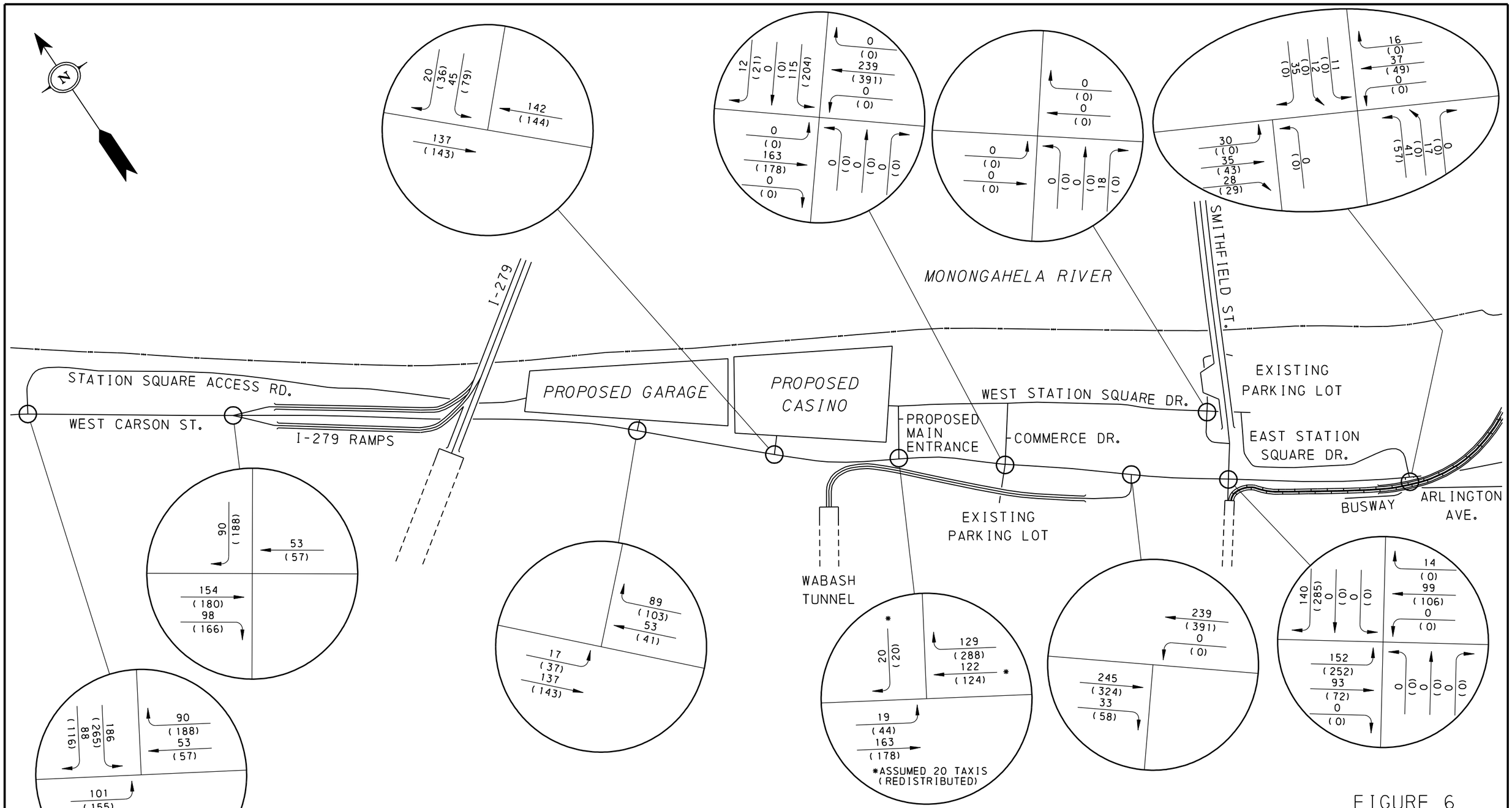
DWN. R.A.K. CHKD. M.S.G.

APPD. _____ DATE _____

SCALE: NOT TO SCALE

DRAWING NUMBER 2005-619-11-T-B004 REV

$DATE$ $TIME$ $FILE$



KEY:

xxx - WEEKDAY STREET PEAK PM PEAK-HOUR TOTAL NEW TRIPS

(xxx) - SATURDAY PM GAMING PEAK-HOUR (6:00 PM TO 7:00 PM) TOTAL NEW TRIPS

FIGURE 6

gai consultants

NEW TRIP DISTRIBUTION

HARRAH'S STATION SQUARE

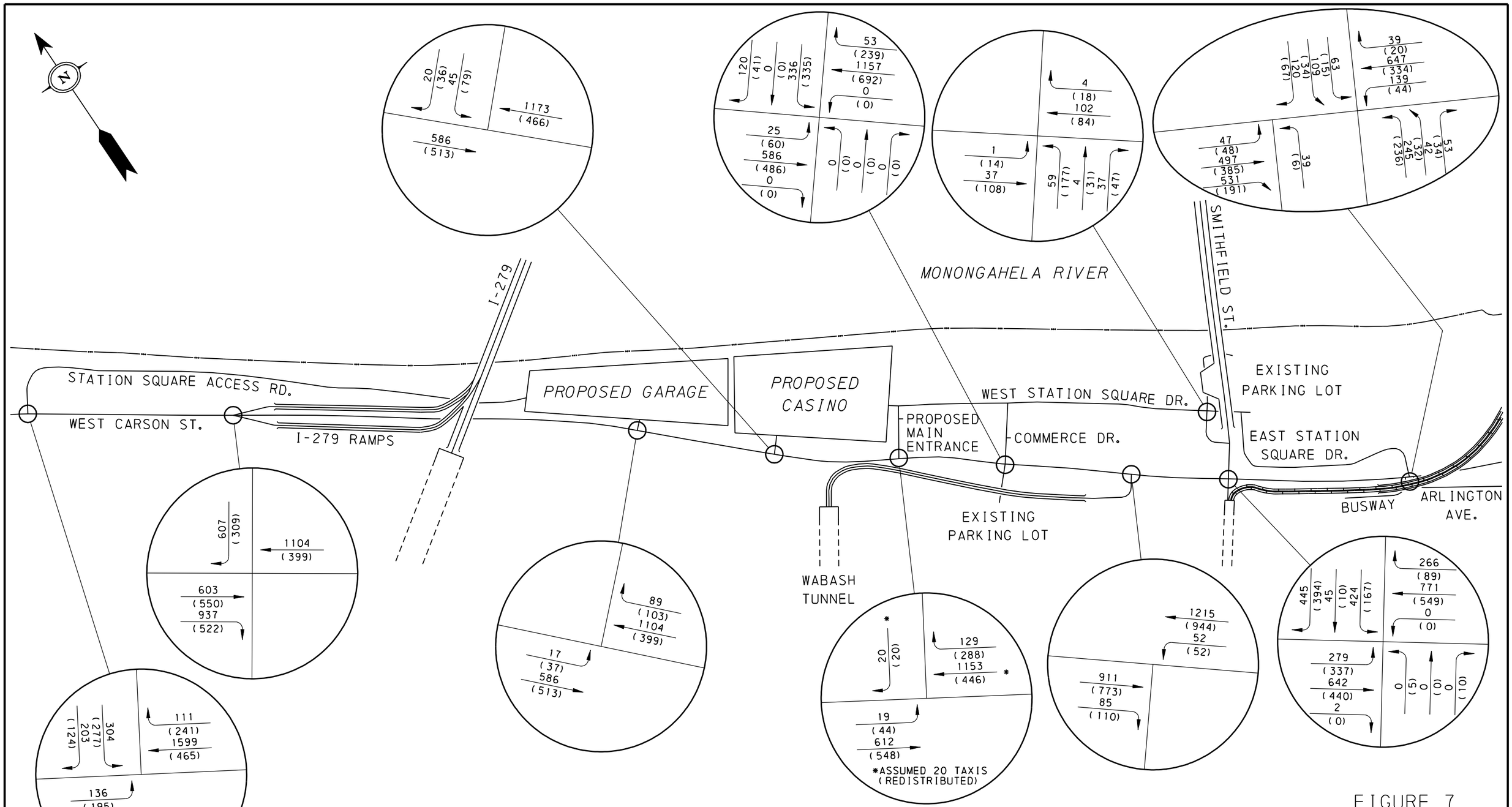
DWN. R.A.K. CHKD. M.S.G.

APPD. _____ DATE _____

SCALE: NOT TO SCALE

DRAWING NUMBER 2005-619-11-T-B005 REV

$DATE$ $TIME$ $FILE$



KEY:

xxx - WEEKDAY STREET PEAK PM PEAK-HOUR BUILD TRAFFIC VOLUMES

(xxx) - SATURDAY PM GAMING (6:00 PM TO 7:00 PM) PEAK-HOUR BUILD TRAFFIC VOLUMES

FIGURE 7

gai consultants

2008 BUILD STREET
PEAK-HOUR AND SATURDAY
GAMING PEAK-HOUR TRAFFIC

HARRAH'S STATION SQUARE

DWN. R.A.K. CHKD. M.S.G.

APPD. _____ DATE _____

SCALE: NOT TO SCALE

DRAWING NUMBER
2005-619-11-T-B006 REV

$DATE$ $TIME$ $FILE$

Level-of-service results are summarized in the following tables.

Table 3

Weekday PM Peak Hour Unsignalized Intersection Level of Service					
Location		2004 Existing Conditions	2008 Conditions		
			Base	Build	Build (Improved)
Ramp from Smithfield Street and West Station Square Drive	NB	A	A	A	A
	EB	A	A	A	A
	WB	A	A	A	A
	Total	**-**	**-**	**-**	**-**
West Carson Street and Proposed Entrance Driveway	EB	-	-	A	B
	WB	-	-	A	A
	Total	**-**	**-**	**-**	**-**

Table 4

Saturday Gaming (6-7 PM) Peak Hour Unsignalized Intersection Level of Service					
Location		2004 Existing Conditions	2008 Conditions		
			Base	Build	Build (Improved)
Ramp from Smithfield Street and West Station Square Drive	NB	B	B	B	A
	EB	A	A	A	A
	WB	A	A	A	A
	Total	**-**	**-**	**-**	**-**
West Carson Street and Proposed Entrance Driveway	SB	-	-	A	A
	EB	-	-	A	A
	WB	-	-	A	A
	Total	**-**	**-**	**-**	**-**

Notes: Base = Background traffic with anticipated growth.
Build = Base traffic with the addition of the anticipated development trips.
(Improved) = Build traffic with improvements.
The average seconds of delay per vehicle is indicated where LOS F is reported.

Table 5

Weekday PM Peak Hour Signalized Intersection Level of Service					
Location		2004 Existing Conditions	2008 Conditions		
			Base	Build	Build (Improved)
West Carson Street and Station Square Access Road	EB	A	A	B	A
	WB	B	B	90.4 F	D
	SB	D	D	D	D
	Total	**B**	**B**	**E**	**C**
West Carson Street and Proposed Valet Out	EB	-	-	A	A
	WB	-	-	A	A
	SB	-	-	D	C
	Total	**-**	**-**	**A**	**A**
West Carson Street and Proposed Main Entrance	EB	-	-	A	A
	WB	-	-	A	A
	SB	-	-	D	D
	Total	**-**	**-**	**A**	**A**
West Carson Street and Commerce Drive/Parking Lot	EB	A	A	A	A
	WB	B	B	B	A
	NB	A	A	A	A
	SB	C	C	C	D
	Total	**B**	**B**	**B**	**B**
West Carson Street and Wabash Tunnel	EB	A	A	A	A
	WB	A	A	A	A
	Total	**A**	**A**	**A**	**A**
Carson Street and Smithfield Street/Port Authority Access	EB	C	C	E	B
	WB	C	C	C	C
	NB	A	A	A	A
	SB	C	C	E	D
	Total	**C**	**C**	**D**	**C**
East Carson Street and Busway/Arlington Avenue/ East Station Square Drive	EB	D	E	92.8 F	D
	WB	D	D	E	D
	NEB	D	D	D	D
	NWB	D	D	D	D
	SB	D	D	E	D
	Total	**D**	**D**	**E**	**D**

Notes: Base = Background traffic with anticipated growth.
Build = Base traffic with the addition of the anticipated development trips.
(Improved) = Build traffic with improvements.
The average seconds of delay per vehicle is indicated where LOS F is reported

Table 6

Saturday Gaming (6-7 PM) Peak Hour Signalized Intersection Level of Service					
Location		2004 Existing Conditions	2008 Conditions		
			Base	Build	Build (Improved)
West Carson Street and Station Square Access Road	EB	A	A	B	B
	WB	A	A	C	B
	SB	D	D	E	C
	Total	**A**	**A**	**C**	**B**
West Carson Street and Proposed Valet Out	EB	-	-	A	A
	WB	-	-	A	A
	SB	-	-	C	C
	Total	**-**	**-**	**A**	**A**
West Carson Street and Proposed Main Entrance	EB	-	-	A	A
	WB	-	-	A	A
	SB	-	-	D	C
	Total	**-**	**-**	**A**	**A**
West Carson Street and Commerce Drive/Parking Lot	EB	A	A	A	A
	WB	B	B	B	A
	NB	A	A	A	A
	SB	C	C	C	D
	Total	**B**	**B**	**B**	**B**
West Carson Street and Wabash Tunnel	EB	A	A	A	A
	WB	A	A	A	A
	Total	**A**	**A**	**A**	**A**
Carson Street and Smithfield Street/Port Authority Access	EB	A	A	C	A
	WB	A	A	B	B
	NB	B	B	B	B
	SB	B	B	C	C
	Total	**A**	**A**	**C**	**B**
East Carson Street and Busway/Arlington Avenue/ East Station Square Drive	EB	B	B	B	B
	WB	B	B	B	B
	NEB	D	D	D	D
	NWB	C	C	C	D
	SB	C	D	D	C
	Total	**C**	**C**	**C**	**C**

Notes: Base = Background traffic with anticipated growth.
Build = Base traffic with the addition of the anticipated development trips.
(Improved) = Build traffic with improvements.
The average seconds of delay per vehicle is indicated where LOS F is reported.

See Appendix C for Synchro intersection capacity output.