EXECUTIVE SUMMARY

In 2002, the City of San Diego and community stakeholders developed a series of innovative traffic calming concepts for University Avenue to help enhance and rediscover the corridor as a pedestrian and transit friendly environment. A Preferred Concept Plan was developed that integrates a series of traffic calming elements that strikes a balance between all modes of transportation. The Preferred Concept Plan strives to meet the following objectives:

- Reduce Speeding
- Create Pedestrian Friendly Environment
- Improve Traffic Flow and Safety
- Provide for Bicyclists
- Improve Transit Flow
- Reduce Bus Conflicts
- Beautify the Corridor
- Increase Parking

In January 2004, the City moved forward with the second phase of the University Avenue project. This second phase, the University Avenue Mobility Plan, takes a closer look at how the traffic calming and transit-oriented concepts work together to meet the community goals. The project provided numerous opportunities for community review and input. A series of technical studies focusing on traffic, transit, pedestrians and bicycle were prepared to identify opportunities for improved mobility. The project ultimately resulted in a Refined Concept Plan that will enhance University Avenue as a place where people want to live, work, shop and play

The goal of the University Avenue Mobility Plan is to evaluate the operating conditions of the corridor associated with the elements of the Preferred Concept Plan. As constraints were identified through the detailed traffic modeling process used in this analysis, refinements and alternatives to the concept plan were proposed and evaluated. The end result of the project will be a refined concept plan that continues to meet the overall goals and objectives of the Preferred Concept Plan. The following sections and associated chapters in this document outline the analysis of the operations of the Preferred Concept Plan and the steps taken to refine the concept plan to strike a mobility balance along University Avenue.

CHAPTER 1 – DEVELOPMENT OF THE PREFERRED CONCEPT PLAN

Chapter 1 provides the history of the Preferred Concept Plan. A detailed discussion of the elements of the Preferred Concept Plan and goals of the University Avenue Mobility Plan are outlined in Chapter 1.

CHAPTER 2 - PUBLIC OUTREACH

A total of six public workshops were conducted over a six-month period that aimed to involve the community in the development of the Refined Concept Plan. Three meetings were held on Saturday mornings, two were held in conjunction with regularly scheduled meetings of the North Park Redevelopment Area Project Area Committee (PAC) and Greater North Park Planning Committee (GNPPC), and one special joint meeting of the PAC and GNPPC was held on a Thursday evening. Public meetings were held once per month during the project's six month schedule to keep the public informed of the project's progress and collect public input.

It was clear through the public outreach efforts established for this second phase of the project, that there was community awareness and support for the Preferred Concept Plan.

Input provided by the public at each of the community meetings is summarized and addressed in Chapter 2 of this document, including responses to all recommendations regarding changes to the Preferred Concept Plan.

CHAPTER 3 – OPERATIONAL ANALYSIS METHODOLOGY

University Avenue is home to one of the most heavily utilized transit routes in San Diego County – Route 7. In addition, traffic volumes along University Avenue during the peak hours result in significant delay and operational issues along the corridor. To fully understand the existing, future and Preferred Concept Plan operating conditions along the corridor. Existing traffic counts were collected for this project and the 2030 traffic volumes were estimated using the SANDAG 2030 Traffic Forecast model. The VISSIM software program was used in conjunction with SANDAG traffic model data and traffic signal timing plans developed in the Synchro software program. VISSIM is an advanced traffic simulation software package that allows individual lane classifications and detailed multi-modal modeling.

Chapter 3 of this report outlines the detailed post-processing efforts associated with the SANDAG traffic model, the detailed transit forecasting efforts conducted by SANDAG for this project, and the measures of effectiveness defined to evaluate operating conditions along the study corridor.

CHAPTER 4 – EXISTING CONDITIONS

University Avenue is classified as a four lane major arterial in the Greater North Park Community Plan through North Park but its functional classification is that of a collector street. Years ago, a historic streetcar operated along the corridor. Mapping of existing utilities along the corridor show that the tracks for the historic streetcar were buried in University Avenue. Researching the existing utilities also shows that University Avenue is laden with underground utilities, which includes a sewer line that extends near

the centerline of the roadway. This existing waterline may result in constrained planting opportunities for the proposed raised median included in the Preferred Concept Plan.

Four distinct modes of transportation are provided along the corridor: passenger vehicle, public transit vehicles, walking and bicycling. To evaluate the operating conditions along the corridor, peak hour and daily data was collected for each mode including intersection traffic count data, transit boarding and alighting data, pedestrian activity and crossing data, and bicycle activity data along the corridor.

To evaluate the traffic operations of the corridor, a total of 30 intersections and 34 study roadway segments were identified, illustrated in Exhibit ES-1, in the study area. As shown, the study area extends beyond University Avenue in order to understand the impact of the Preferred Concept Plan on the surrounding roadway network. Based on intersection analysis, most of University Avenue operates at acceptable operating conditions with most intersections operate at less than 35 seconds of delay. Of particular interest are the intersections of University Avenue/Park Boulevard, Boundary Street/I-805 SB Ramps, and the northbound approach of University Avenue/Alabama Street- that operate at less than acceptable conditions (delay of more than 55 seconds). According to City roadway segment LOS thresholds, University Avenue currently operates at LOS F from Florida Street to 32nd Street.

Route 7 and Route 908 provide transit service along University Avenue. To assess the operating conditions of transit along the corridor, boarding and alighting data, pedestrian access data and on-time arrival data was collected for each of the transit routes. Much of the passenger data was provided by SANDAG for use in this study. The results of the existing conditions analysis show that both transit lines are well utilized with Route 7 having one of the highest ridership in the city. The highest utilized transit stops along the corridor are at 30th Street and Park Boulevard, where daily boardings and alightings exceed 4,000 per day for both Route 7 and Route 908.

Pedestrian access along the corridor is typically constrained to signalized intersections and a few unsignalized crossings. East of Utah Street, pedestrian access is good with sidewalk widths in excess of 10 feet. However, west of Utah Street, sidewalk conditions vary and in many cases the sidewalk is in need of repair.

Bicyclists along University Avenue share the travel way with buses and passenger vehicles. No existing bicycle facilities are provided along University Avenue. Although some die-hard cyclists are known to use University Avenue, on the average fewer than 12 bicycles per day travel along the corridor. Most bicyclists use parallel roads such as North Park Way and Lincoln Avenue.

Chapter 4 provides a detailed discussion of the existing conditions along the University Avenue corridor.

Exhibit ES-1

CHAPTER 5 – FUTURE YEAR CONDITIONS

The City of San Diego and San Diego Association of Governments provide horizon year forecast traffic volumes for most communities throughout the City. North Park is no exception. In 2004, SANDAG released the Series 10 traffic model, which forecasts to the year 2030. Land use in the year 2030 is based on the adopted community plan for North Park, which calls for overall density increases for University Avenue. Many of the currently planned projects in North Park are integrated into the SANDAG 2030 traffic model.

Chapter 5 provides a detailed summary of the future year modeling methodology, planned land use changes along the corridor, and operating conditions for the years 2010 and 2030.

The No Build condition refers scenarios analyzed without the Preferred Concept Plan. Both No Build study years assume no change in geometry or traffic controls when compared to existing conditions. Traffic signal timing optimized for future scenarios. The No Build condition does not include any change to transit service. However, ridership projections and traffic model data were used to forecast the vehicular flow along the corridor.

The results of the No Build 2010 and 2030 conditions show that 16 of the 30 study intersections are forecast to operate at acceptable delay. By 2030, passenger vehicle travel time along the corridor would exceed 14 minutes in the eastbound direction and 8 minutes in the westbound direction in the p.m. peak hour. This is an increase of over 7 minutes in the eastbound direction and over 2 minutes in the westbound direction compared to existing conditions.

By 2030, transit ridership is forecast to increase by nine (9) percent for both Route 7 and Route 908. Due to forecast increase in traffic flow along University Avenue, transit vehicle travel time would exceed 6 to 7-minutes in the eastbound direction and remain approximately the same in the westbound direction during the p.m. peak hour. This would result in an increase in travel time of approximately 7-minutes over existing conditions in the p.m. peak hour.

Pedestrian facilities for the years 2010 and 2030 are not planned to change over existing conditions. However, increased density, integration of mixed-use and high-density development on the corridor, and increased transit ridership will result in an increase in pedestrian activity along the corridor. This will result in increased pedestrian crossings at intersections, demand for wider sidewalks and contribute to improved economic vitality of the corridor.

Due to the high traffic along the corridor, bicycle activity along University Avenue is currently minimal and anticipated to remain minimal in 2010 and 2030. No bicycle facilities such a bike lanes or bike routes are planned for University Avenue. Therefore, it is anticipated that most bicycle activity will remain on parallel roads such as Lincoln Avenue and North Park Way under No Build conditions.

CHAPTER 6 – OPERATIONAL ANALYSIS OF THE PREFERRED CONCEPT PLAN

The Preferred Concept Plan integrates many traffic calming features that aim to slow traffic and create a more pedestrian friendly environment. Chapter 6 focuses on the operational analysis of the corridor with the key features of the Preferred Concept Plan in place. The SANDAG traffic model was used to forecast year 2010 and 2030 traffic model volumes for the corridor. Reducing the number of mixed flow travel lanes along University Avenue from four lanes to two lanes would result in some diversion of traffic from University Avenue to parallel routes. The primary alternative routes identified were Lincoln Avenue, North Park Way, El Cajon Boulevard and Upas Avenue. Approximately 20 percent of the total 2030 traffic forecast along University Avenue would be diverted onto parallel routes. This results in an overall reduction in traffic flow along University Avenue in the peak hours when compared to the No Build condition.

The traffic modeling efforts conducted for this study show that most trips along University Avenue in North Park are destined for North Park. In fact, less than 10 percent of the total volume entering North Park from either Park Boulevard or Boundary Avenue travels from one end to the other. This is a positive sign for the economic vitality of the community.

After considering the diversion of traffic from University Avenue to parallel roadways, traffic and transit measures of effectiveness were evaluated for the Preferred Concept Plan condition in both the year 2010 and 2030. The results of the 2030 analysis show that during the p.m. peak hour period, travel time in the eastbound direction for passenger vehicles exceed 21 minutes. In the westbound direction, passenger vehicle travel times are forecast to exceed 8 minutes. This is an overall increase in travel time of approximately 7 minutes in the eastbound direction and 3 minutes in the westbound direction with the implementation of the Preferred Concept Plan. It is clear that the Preferred Concept Plan reaches the goal of slowing traffic down through the corridor. However, the speed of travel along the corridor reaches unacceptable levels by nearly tripling the existing travel time along the corridor. The slow travel speed and congestion could negatively affect businesses along the corridor by deterring potential shoppers and visitors.

The Preferred Concept Plan proposes a reduction in the total number of transit stops along the corridor from 20 to 10. Average spacing of transit stops is approximately three blocks. Transit only lanes are also provided for the majority of the corridor, primarily from Florida Street to Idaho Street. However, transit travel times through the corridor with the Preferred Concept Plan are also forecast to increase in the a.m. peak hour in the eastbound direction when compared to the No Build condition. On the average, transit vehicle travel time in the eastbound direction is forecast in 2030 to be approximately 15 to 16-minutes and 9-minutes in the westbound, both measured for the p.m. peak hour.

The increase in travel time for both transit and mixed flow traffic can be attributed to some inherent constraints in the Preferred Concept Plan:

- Roundabout at Texas Street. As proposed in the Preferred Concept Plan, the roundabout at Texas Street is one lane. Capacity analysis of the roundabout shows that the Texas roundabout is forecast to operate at unacceptable delay. Queues with the single lane roundabout are forecast to extend as far west as Park Boulevard and as far east as 30th Street by 2030.

- Discontinuous Transit Only Lane. As proposed in the Preferred Concept Plan, the transit only lane extends from Florida Street to Boundary Street, but would not be continuous from Idaho Street to Iowa Street where parallel parking along University Avenue results in only one travel lane in each direction. The transit only lane would stop in the eastbound direction at Ray Street to allow for parking in the central core of University Avenue and begin again at Herman Street. In the westbound direction, the transit only lane would end at Iowa Street and buses would travel in mixed-flow lanes through Idaho Street to allow for parking. At either end of the central core of University Avenue, buses and passenger vehicles must merge into one lane. This merging results in high delays and excessive queues along University Avenue.

Chapter 6 provides a detailed discussion of the proposed changes to the Preferred Concept Plan that would help balance the flow of traffic and transit through the corridor.

The Preferred Concept Plan would increase the number of pedestrian crossing locations along the corridor and recommends enhanced crosswalk features to improve safety for both bicyclists and pedestrians. The proposed raised median provides a refuge for pedestrians crossing at unsignalized locations. The raised median should help to reduce the number of pedestrian crossings occurring illegally along the corridor today.

With the implementation of the transit only lane, bicycle activity on University Avenue has the potential to increase. The bicycling public could share the transit only lane when a transit vehicle does not occupy the lane. Since SANDAG does not have any long range plans to improve transit operations along the corridor, transit will continue to operate at about six-minute headways under existing, 2010 and 2030 conditions in the peak hours.

CHAPTER 7 – OPERATIONAL ANALYSIS OF CONCEPT PLAN ALTERNATIVES

Once the constraints of the Preferred Concept Plan were identified, alternatives were evaluated to determine if acceptable travel times through the corridor could be achieved while maintaining the walkable environment desired by the community. The alternatives identified provided the project team

and stakeholders the opportunity to consider variations to the Concept Plan, related to the overall travel time to passenger vehicles and transit vehicles.

Chapter 7 provides a detailed summary of the initial six scenarios evaluated for the corridor, as well as the final three refined alternatives. The alternatives focused on three key components of the Preferred Concept Plan:

- **Relocation of Parking along University Avenue –** To provide a continuous transit only lane along University Avenue, all parallel parking along the corridor was shifted to the side streets. This modification to the Preferred Concept Plan resulted in travel time reductions of up to ten minutes for passenger vehicles and six minutes for transit vehicles.

- **Removal of the One-Lane Roundabout at Texas Street** – The alternatives assessed the operations of Texas Street as a signalized intersection and as a two-lane roundabout.

- **Realignment of Texas Street** – Texas Street is currently offset, which means that the north and south leg are not directly across from one another. Due to this offset condition, the north and south traffic through the intersection are provided green time in separate phase. Out of a 100 second cycle length, the north and south movements can consume as much as half of the available green time. In addition, a pedestrian phase is also provided at Texas Street. During this all-red phase, traffic in all directions is required to stop for up to 20 seconds. As a result of the split north-south phasing and the all-pedestrian phases, a small portion of the typical traffic signal cycle is allocated to University Avenue. To improve the east-west traffic flow through the intersection, consideration was given to realigning Texas Street on the south side of University Avenue.

- **Variation in Transit–Only Lanes** – Variations in the western limit of the transit-only lane were tested for the eastbound direction only to determine the benefit and impacts of the transit only lane along the corridor. The eastbound lane started at Park Boulevard in three scenarios and at Utah Avenue in two scenarios. The results of the analysis show that beginning the transit only lane at Park Boulevard would result in increased delay at Park Boulevard and increased travel time for passenger vehicles through the corridor. Beginning the transit only lane at Utah Avenue would have only slight impacts on the travel time for both transit vehicles and passenger vehicles. Delays at intersections west of Utah would be reduced due to the increase in capacity through those intersections. Higher delays and queues were forecast at Utah Avenue if the transit only lane were to begin at this location.

- **Removal of Ohio Traffic Signal** – Between 30th Street and Illinois Street, there are currently four signalized intersections. At three of the four locations, left turn access is permitted with the Preferred Concept Plan. To provide improved traffic flow through this section of the corridor, the removal of the Ohio Street traffic signal was tested. The results of this analysis show that the removal of the Ohio traffic signal can reduce travel time and delay through the corridor and improve the coordination and flow through the corridor. Travel times are forecast to decrease by as much as three minutes with the removal of the signal at Ohio Street.

The alternatives evaluated were presented to the public and the project steering committee for review and evaluation. Through this public review process and detailed analysis of the operating conditions along the corridor, the Refined Concept Plan was identified. The Refined Concept Plan integrates the following changes to the Preferred Concept Plan:

- **Modification to Eastbound Transit Only Lane** – The Refined Concept Plan includes an eastbound transit only lane from Utah Street to Boundary Street. This design provides the necessary capacity and alternative routes for the eastbound passenger vehicle traffic along the corridor, while maintaining improved transit operations.

- **Removal of On-Street Parallel Parking** – The Refined Concept Plan recommends as a short term solution that during the peak hours, on-street parallel parking along University Avenue be removed and shifted to the side streets. During the off peak hours, on-street parallel parking would be permitted. The removal of on-street parallel parking greatly improves the efficiency of transit service through the core of the corridor (Idaho Street to Iowa Street). The long-term goal would be to attract businesses to University Avenue that do not have a need for on-street parking and heavy loading/unloading needs. This would enable on-street parallel parking to ultimately be prohibited along University Avenue.

- **Removal of Traffic Signal at Ohio Street** – The Refined Concept Plan recommends the removal of the existing traffic signal at Ohio Street. This traffic signal is one of four existing signals in less than one-quarter mile along the corridor. Three of the four signals allow eastbound left turn access. Removing the traffic signal at this location, and replacing the signal with an enhanced pedestrian crossing, improves traffic flow and transit efficiency along the corridor without compromising pedestrian or bicycle access.

- **Maintain Traffic Signal at Texas Street** – The Refined Concept recommends that Texas Street remains a signalized intersection. Analysis of the proposed single lane roundabout at Texas Street showed that significant delays and queues would form at this location if a single lane roundabout were constructed. Although a two-lane roundabout

was shown to operate efficiently at this location, the two-lane roundabout would require significant right-of-way taking to construct. Therefore, it is recommended that traffic control at the Texas Street intersection remain unchanged.

The Refined Concept Plan is illustrated in Exhibit ES-2. Tables ES-1 and ES-2 summarize the forecast horizon year 2030 traffic and transit operating conditions for the Refined Concept Plan.

Table ES-1
Refined Concept Plan (Year 2030)
Travel Time

	Eastbound		Westbound	
	AM	PM	AM	PM
Passenger Vehicle	8.1	11.6	5.5	8.6
Route 7	8.1	10.5	9.0	9.6
Route 908	7.3	10.4	8.0	9.2

Table ES-2
Refined Concept Plan
Delay Summary

Study Intersection	Total Delay[1]		Concurrent Delay[2]		Conflicting Delay[3]	
	AM	PM	AM	PM	AM	PM
University Avenue/Park Avenue	34.5	47.4	29.8	42.6	40.3	51.4
University Avenue/Florida Street	19.5	40.1	3.7	12.1	84.3	104.4
University Avenue/Mississippi Street	11.4	18.8	4.3	9.1	49.4	57.7
University Avenue/Texas Street[3]	40.0	68.9	30.1	58.2	63.9	89.0
University Avenue/Arnold Avenue[4]	7.5	18.5	4.0	17.3	39.7	34.5
University Avenue/Oregon Street[4]	3.9	17.0	3.4	14.3	39.4	59.4
University Avenue/Utah Street	24.4	58.8	17.9	63.2	46.2	49.8
University Avenue/30th Street	26.5	67.3	14.8	48.3	45.0	84.9
University Avenue/Ohio Street	0.2*	1.2*	0.0*	0.1*	12.2*	11.9*
University Avenue/Grim Street	6.1	8.8	2.9	4.3	40.7	55.1
University Avenue/Illinois Street	8.5	12.4	4.6	6.8	53.3	43.3
University Avenue/32nd Street	40.5	34.4	35.3	34.6	53.2	34.0
University Avenue/Boundary Street	36.7	65.7	30.0	75.4	53.4	46.6
University Avenue/Wabash Street	35.5	34.3	32.6	31.2	39.2	37.6

1 Intersection Delay = Average delay for all movements at the intersection (sec/veh)
2 Concurrent Delay = Delay imposed to eastbound & westbound vehicles along University Avenue (sec/veh)
3 Conflicting Delay = Delay imposed to northbound & southbound vehicles entering or crossing University Avenue (sec/veh)
* Unsignalized intersection under Refined Concept Plan scenarios.

ES-2
Refined Concept Plan (Sheet 1 of 3)

ES-2
Refined Concept Plan (Sheet 2 of 3)

ES-2
Refined Concept Plan (Sheet 3 of 3)

Pedestrian and bicycle access would not be compromised by the Refined Concept Plan. With the Refined Concept Plan, five unsignalized crossings would be added to the corridor and two new signalized intersections would be added (Arnold Avenue and Oregon Street). The five new unsignalized crossings would be enhanced with the addition of in pavement flashing devices and overhead signs providing pedestrian greater visibility to cars and buses on the corridor. These improvements would improve north-south access along University Avenue and improve access to the consolidated transit stops. Sidewalk improvements at many intersections will include the construction of curb-extensions (or bulb-outs) along the side streets. These curb-extensions would narrow the curb-to-curb width at the intersection to a minimum of 24 feet, minimizing the pedestrian exposure time to vehicular traffic.

Bicycles currently share the travel way with passenger vehicles, buses and trucks. The Refined Concept Plan recommends the construction of transit only lanes along the corridor. Bicyclists would be permitted to ride in the transit in only lane, improving the overall accessibility for bicycles along University Avenue. Since most bicyclists in the North Park area currently use alternate routes to bypass University Avenue (Lincoln Avenue, North Park Way and Wightman Way, for example), the increased number of mid-block crossings will improve north-south connectivity for the recreational and avid bicyclist.

One of the most controversial elements of the Refined Concept Plan is parking. The Preferred Concept Plan removed all parallel on-street parking west of Idaho Street along the corridor, but maintained much of the on-street parallel parking east of Idaho Street. All on-street parallel parking from 28th Street to 30th Street would not be removed. The operational analysis of the Preferred Concept Plan showed that the on-street parallel parking creates a significant bottleneck along the corridor. Therefore, it is recommended that the on-street parallel parking be removed from University Avenue and be replaced with improvements to on-street parking along the side streets.

At the May 6th Community Meeting, it was revealed that businesses located on the north side of University Avenue do not have rear access. Therefore, these businesses are dependant upon parking and loading zones along University Avenue to serve their businesses. To address the needs of the community, a total of five parking alternatives were developed, outlined in Chapter 8 of this document, that focused on maximizing parking from Idaho Street to Iowa Street. To maximize peak hour operations for transit vehicles and passenger vehicles along the corridor, and to provide the necessary access to businesses, the preferred parking alternative selected would allow parking to remain on University Avenue during off-peak hours. Between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m., parking on University Avenue would be restricted to allow for the transit only lane.

Selection of the Refined Concept Plan and parking alternative focused on balancing the operational elements of the corridor. Involved in the selection process were the 13 member Steering Committee and representatives of SANDAG. Both SANDAG and the Steering Committee prefer that the eastbound transit only extend from Park Boulevard to Boundary Street, providing a dedicated lane in both the eastbound and westbound direction for the entire length of the corridor. SANDAG and the Steering

Committee also recommended that all on-street parallel parking be removed from the corridor to allow for no interruptions in the transit only lane throughout the day. Results of the surveys collected at the June 12th Community Workshop indicated that there is community support for removing the on-street parallel parking at all times of the day on University Avenue.

CHAPTER 8 – REFINED CONCEPT PLAN DESIGN ELEMENTS

Chapter 8 outlines the design elements associated with the Refined Concept Plan. The elements of the plan are consolidated into four key areas: Roadway Improvements, Pedestrian Improvements, Transit Improvements and Parking Improvements. Roadway cross-sections are provided for key sections of University Avenue, where the lane designation or parking configuration varies along the corridor.

The raised median proposed in the Refined Concept Plan would result in the construction of left turn pockets at all signalized intersection. Pocket length calculations for all existing and future signalized intersections were conducted to prevent left turning vehicles from blocking the through lane.

A traffic signal warrant analysis was conducted for the two new proposed traffic signals: Arnold Avenue and Oregon Street. The results of the analysis show that the Planning Analysis traffic signal warrant for Interruption of Continuous Traffic Flow is met by 2030 with Preferred Concept Plan traffic volumes.

Due to the diversion of traffic that is anticipated to occur by reducing the number of travel lanes from four lanes to two lanes, potential traffic calming measures were identified for the surrounding community. Traffic signal warrants were evaluated for the most directly impacted intersections along the corridor that are currently signalized. The results show that the intersection of Texas Street/Lincoln Avenue meets the warrants for a traffic signal. Other traffic calming measures recommended in Chapter 8 include the addition of curb extensions along North Park Way and Lincoln Avenue and parking modifications to narrow the travel way.

CHAPTER 9 – IMPLEMENTATION PROGRAM

Several steps will need to be taken to move the Refined Concept Plan from paper to pavement. Chapter 9 outlines the costs of constructing the elements of the Refined Concept Plan, a recommended implementation plan and potential funding sources for the project. Based on the preliminary estimate of probable costs, the Refined Concept Plan may cost over $9 million to construct, which includes over $4 million in administrative, design, construction support and contingency costs.

The implementation plan recommends that the construction of the corridor roadway improvements (curb-extensions, signal modifications, crosswalks, raised medians, etc) be constructed as a single project with the raised medians as the final element of the design. This recommended implementation plan aims to maximize the capacity of the roadway during construction to minimize the impacts to the motoring public

and businesses along the corridor. By constructing the raised median as one of the final stages of the construction process, traffic could be shifted across the centerline of University Avenue during the construction of the curb-extensions, sidewalk improvements, and signal improvements.

A preliminary or test phase of the project could be undertaken immediately, that would not require physical improvements to the corridor. The entire corridor could be striped to reflect the design shown in the Refined Concept Plan. However, a striped median is not as effective as a raised median in controlling access from the side streets and therefore the benefits of constrained access may not be realized until the median is constructed.

Although actual street sections were not available when the preliminary design was prepared for this project, as-built drawings show that the streetcar tracks are buried in University Avenue. They are located down the center of the street. It is believed that the streetcar tracks are approximately 10 inches below the surface of the road, resulting in the six percent crossfall along University Avenue. The existing tracks may result in construction related issues associated with the raised median. Since 10 to 12 inches of excavation is required for the construction of the raised median, the rail tracks will be exposed when the excavation begins. It is recommended that the old tracks be removed and the road be reconstructed to a normal two percent crossfall. Reducing the slope of the crossfall would help transit operations and passenger loading along the corridor.

CHAPTER 10 – FEASIBILITY OF THE HISTORIC STREETCAR

The University Avenue "Traffic Calming Conceptual Study" prepared in November of 2002 proposed reintroducing a Historic Streetcar service along University Avenue. The reintroduction of the Historic Streetcar was ranked as the most popular feature for the corridor at the first community meeting held for the University Avenue Traffic Calming Project. Reintroducing the Historic Streetcar is intended to offer four distinct features for the North Park Community:

- Provide an enhanced transit experience to encourage transit ridership and reduce traffic.
- Encourage economic revitalization along University Avenue.
- Provide a sense of historic preservation.
- Encourage and increase tourism in the North Park community.

Voting conducted at the Community Workshop for the University Avenue Traffic Calming project also suggested that the Historic Streetcar service run along University Avenue and continues south on Park Boulevard connecting to downtown San Diego. The Park Boulevard terminus for the streetcar line is intended to be at or near the intersection of Park Boulevard (12th Avenue) and "C' Street.

The Historic Streetcar analysis outlined in this document focuses on the unique characteristics of the corridor, type of streetcar, design criteria set out in the Preferred Concept Plan, and the role the streetcar

would play in providing transit options within the University Avenue corridor of San Diego. The evaluation of the Historic Streetcar analysis relies primarily on the physical requirements necessary to implement the streetcar system effectively within the existing curb-to-curb width of University Avenue. To support this effort the consultant team defined several study objectives:

- Define the route or alignment and confirm the station locations.
- Define the streetcar or vehicle type – this greatly influences the design requirements.
- Establish the physical requirements and analysis
- Determine shared transit lanes feasibility
- Determine operations and maintenance responsibility
- Establish a general "estimated order of magnitude capital costs"

In general, the analysis determined that it is possible to physically implement and operate the Historic Streetcar within the curb-to-curb with of University Avenue through the study corridor. However, there are issues and physical design features that need to be further addressed as future planning and design of the alignment moves forward.

Although implementation is feasible, the Historic Streetcar would require a continuous and persistent effort by both the private and public sectors to see it through to realization. It is estimated that the capital cost of the historic streetcar from 32nd Street to Park Boulevard could exceed $25 million, which does not include a maintenance and storage facility. In addition to the cost, several physical and operational constraints will need to be overcome before the historic streetcar will be considered. Some of the key challenges facing the historic streetcar include:

- Lane widths
- Turn around location
- Storage and maintenance
- Operations in mixed flow lanes
- Interaction with existing transit service
- Operational entity – will SANDAG/MTS operate the streetcar?
- Cost and Funding

Chapter 10 provides a detailed discussion of the feasibility to implement the streetcar service based on the Preferred Concept Plan as designed for University Avenue.

CHAPTER 11 – SANDAG TRANSIT STUDY

This section will be provided by SANDAG.