

Maryland Parkway High Capacity Transit Project

Cumulative Effects Technical Memorandum

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and



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1.0 INTRODUCTION

The Regional Transportation Commission of Southern Nevada (RTC), in cooperation with the City of Las Vegas and Clark County, proposes the construction of the Maryland Parkway High Capacity Transit Project, an 8.7-mile-long route that will replace the existing local Route 109 bus service with an enhanced transit system that will provide speed and service quality improvements and enhance the viability of transit as a transportation choice. The project is subject to federal environmental review requirements because it may involve the use of federal funds from the Federal Transit Administration (FTA). An Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA); FTA is the federal lead agency and RTC is the regional lead agency for this NEPA process. This Technical Memorandum focuses on Cumulative Effects in the Maryland Parkway project study area.

Cumulative impacts are defined as “impacts which result from the incremental consequences of an action when added to other past, present, and reasonably foreseeable future actions” (40 Code of Federal Regulations [CFR] 1508.7). To identify cumulative impacts, a baseline is established which includes development from a specified period of time for past actions, added to present and reasonably foreseeable future actions. This baseline establishes the impacts that have or would occur without the project. The direct and indirect impacts associated with the project are the “incremental impacts.” The effects of the addition of the incremental impacts to the baseline are used to assess cumulative impacts.

1.1 Project Description

The Maryland Parkway project corridor is wholly located within Clark County and partially located within the City of Las Vegas. The corridor extends on various local streets from the Las Vegas Medical District through the downtown area to Maryland Parkway, where it would serve major activity centers including the Sunrise Hospital/Medical Center, The Boulevard Mall regional shopping center, the University of Nevada Las Vegas (UNLV) campus, and Russell Road, near McCarran International Airport. The project is located in an urban setting with a wide mix of residential, office, education, medical, and commercial development. Land uses in the project vicinity include residential, commercial, airport, educational institutions, recreation, utility, civic/government, public service facilities (*e.g.*, fire stations, hospitals, and churches), transportation, and vacant land.

The corridor is currently served by local bus Route 109 with 24 hours per day, seven days per week service, with 15-minute headways during the majority of the service span. Stations are currently spaced an average of 0.25-mile apart. The Route 109 buses operate in mixed flow traffic along the 2-lane to 6-lane streets and are subject to the peak hour congestion that occurs at several of the major intersections where average daily traffic reaches levels of 35,000-40,000 vehicles.

The purpose of the proposed project is to improve corridor mobility and transit. The intent is to better address the current travel demand, traffic congestion, and travel delay in the corridor, as well as the

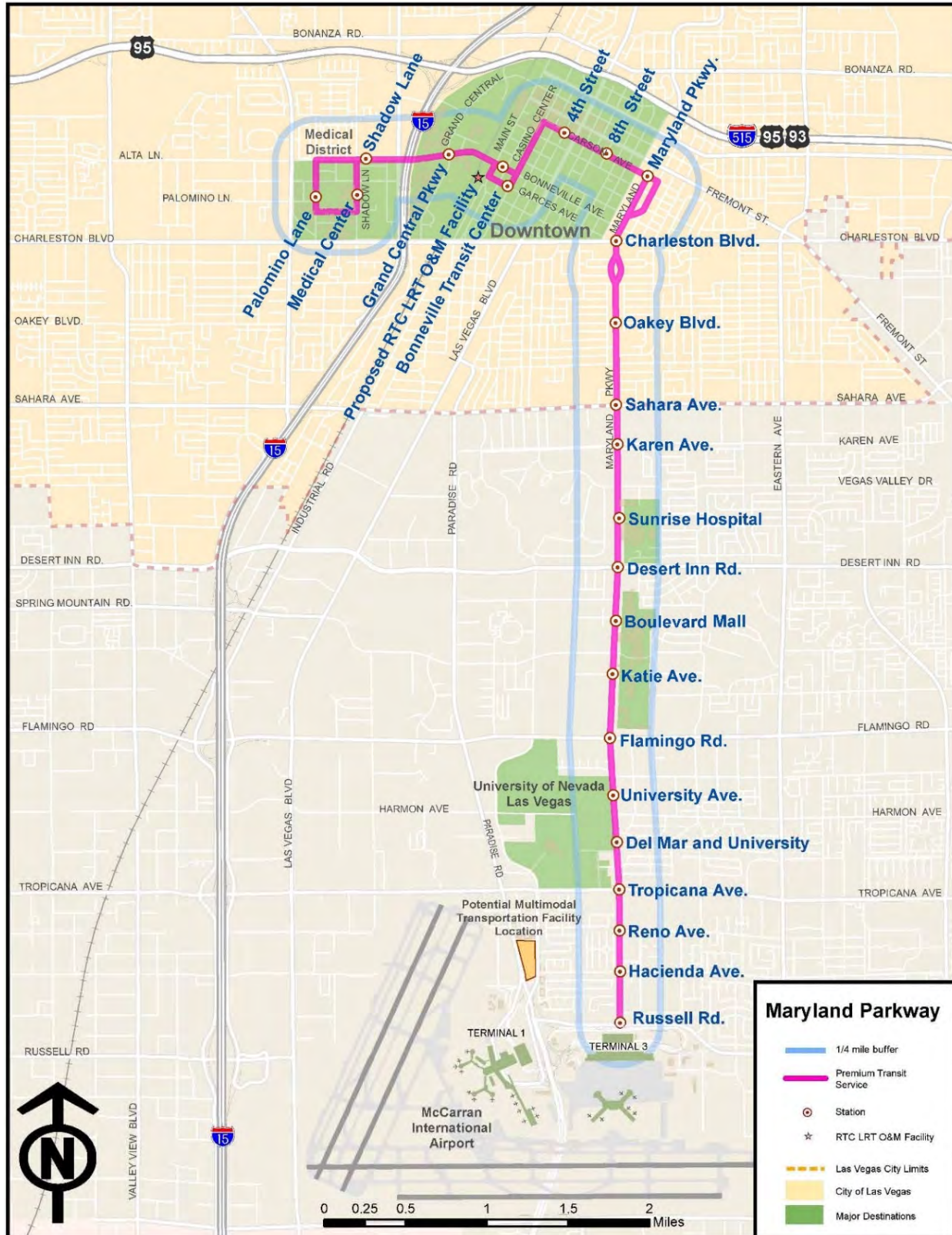
additional population/employment and travel demand growth that will be added to the area by the year effectively enhance mobility and accessibility, improve transit operations, support economic growth and redevelopment, conserve non-renewable resources, and improve corridor safety. The project proposes speed and quality improvements to the public transit system within the corridor. The alternative analysis conducted as part of EA narrowed the final alternatives for further evaluation to the Light Rail Transit (LRT) Build Alternative, Bus Rapid Transit (BRT) Build Alternative, Enhanced Bus Alternative, and No Build. A summary of the alternatives evaluated in the EA document is provided below.

LRT Build Alternative:

The LRT Build Alternative extends from the Las Vegas Medical District through the Downtown Area and connects with Maryland Parkway to serve the Sunrise Hospital/Medical Center, The Boulevard Mall, UNLV, and terminates at Russel Road, near McCarran International Airport (Figure 1). The project proposes speed and quality improvements to the public transit system within the corridor. LRT service will operate in dedicated lanes through the corridor, primarily curbside-running lanes, with the exception of the segment along Casino Center Boulevard between Carson Avenue and Garces Avenue in downtown Las Vegas, where the LRT vehicles will operate in the existing dedicated center-running lanes currently used by the SDX. Those existing dedicated lanes will be reconstructed to install embedded track for joint LRT/bus operation. All of the curbside-running lanes will be reconstructed to install embedded track for LRT operation. Automobiles and other vehicles will be allowed to use the curbside-running lanes for right-turn movements at major/minor intersections and driveways. New, separate right-turn lanes will be provided at major intersections so that the LRT vehicles are not blocked by queued right-turning vehicles as they wait for pedestrians crossing the side streets. The design features of the LRT Build Alternative include:

- LRT service on 12-minute to 15-minute headways with service for 24 hours per day, seven days per week.
- Single, electrically-powered LRT vehicles are expected to provide sufficient capacity, but will have the option to be coupled into 2-car trains if necessary to serve ridership demand in the future. Various vehicle technologies are being considered, including off-wire options with onboard batteries and station charging to reduce or eliminate the overhead wire requirements.
- While vehicle technologies are being considered to eliminate the need for an overhead contact system, the LRT system will include traction power substations. Based on current technology requirements, the traction power substations will be 1 megawatt up to 2.5 megawatt units installed about 1.25 miles apart, for a likely total of eight units in the corridor.

Figure 1. Proposed Alignment and Environmental Study Area



- Curbside-running dedicated lanes that allow vehicular right-turns at minor cross street intersections and at driveways to maintain traffic operational flexibility and capacity. The project also includes separate right-turn lanes at major cross street intersections along northbound and southbound Maryland Parkway to ensure that transit vehicles are not delayed by the volume of right-turning vehicles or those queued as they wait for crossing pedestrians, and to otherwise maintain intersection capacity and improve traffic operations.
- A total of 24 stations spaced approximately 0.35-mile apart on average, with split platforms typically placed on the far side of intersections to minimize travel delay. Station design elements include: pylon/station marker, lighting, bench, trash receptacle, bicycle rack, variable message sign to display real-time arrival information, security cameras, light fixtures, shelter/canopy with wind screen, public art (at select stations), landscaping, map/schedule/advertising illuminated display case (two-sided), pedestrian wayfinding signage, emergency telephone, and public address system.
- Transit Signal Priority with signal coordination to reduce transit delay through intersections where possible, with minimal effect on traffic operations.
- Pedestrian and bicycle improvements for access to stations within a 0.5-mile of each of the 24 stations. Pedestrian access improvements include wider sidewalks, Americans with Disabilities Act accessible boarding areas at each station and connecting ADA-accessible pathways within 0.25-mile radius of all stations. Project elements may include repair or replacement of sidewalk or curb ramps and enhancements to pedestrian crossings with striping, signage, hybrid pedestrian beacons or traffic signals to improve access to the stations and along the corridor. Bicycle access improvements may include bicycle lanes where appropriate and bicycle parking racks/lockers at appropriate stations.
- Street improvements as needed includes pavement replacement, repair and/or reinforcing; rebuilding the curb lanes with embedded track; street lighting, utility improvements, new or modified traffic signals and equipment; raised and landscaped medians along Maryland Parkway; and separate right-turn lanes at major intersections.
- Rail vehicle maintenance and storage facility improvements, to be located on RTC owned 6.2-acre site adjacent to the Union Pacific Railroad mainline tracks just west of the Bonneville Transit Center.
- The end-of-line station connection will occur at Rawhide Road, just east of the airport and Russell Road.

BRT Build Alternative:

The BRT Build Alternative extends the same distance as the LRT Build Alternative and uses the same station locations. The BRT vehicles will be serviced and maintained at the two existing RTC maintenance facilities located 3.75 miles to the northwest and 4.5 miles southwest of the project study area. Features of the BRT Build Alternative include:

- Curbside-running dedicated lanes that allow vehicular right-turns at minor cross street intersections and at driveways to maintain traffic operational flexibility and capacity. The project also includes separate right-turn lanes at major cross street intersections along northbound and southbound Maryland Parkway to ensure that transit vehicles are not delayed by the volume of right-turning vehicles or those queued as they wait for crossing pedestrians and to otherwise maintain intersection capacity and improve traffic operations.
- There are 24 station locations spaced 0.35-mile apart on average, with split platforms typically placed on the far side of intersections to minimize travel delay. Station design elements may include: pylon/station marker, lighting, bench, trash receptacle, bicycle rack, variable message sign to display real-time arrival information, security cameras, passenger shelter/canopy with wind screen, public art (at select stations), landscaping, map/schedule/advertising illuminated display case (two-sided), pedestrian wayfinding signage, and public address system.
- TSP with traffic signal coordination to reduce transit delay through minor intersections where possible, with minimal effect on traffic operations.
- Pedestrian and bicycle improvements for access to stations within a 0.25-mile of each of the 24 stations. Pedestrian access improvements may include wider sidewalks, ADA-compliant boarding areas at each station and connecting ADA-accessible pathways within 0.25-mile radius of all stations. Project elements may include repair or replacement of sidewalk, curb ramps, removal or relocation of sidewalk obstructions, and enhancements to pedestrian crossings with striping, signage, hybrid pedestrian beacons, or traffic signals to improve access to the stations and along the corridor. Bicycle access improvements include standard or separated bicycle lanes or other facilities such as raised bike tracks where feasible and bicycle parking racks or lockers at identified stations.
- Street improvements as needed, including pavement replacement, repair and/or reinforcing; rebuilding the curb lanes with reinforced concrete bus pads at BRT stations; street lighting, utility relocations, new or modified traffic signals and equipment; raised, landscaped median along Maryland Parkway, and separate right-turn lanes at major intersections.

Enhanced Bus Alternative:

The Enhanced Bus Alternative would attempt to maximize service without any major capital improvements. The Enhanced Bus alternative would be a limited stop service with the same 24 stations as those included in the Build alternative with average spacing of 0.35-mile and the same span of service. However, the buses would operate in the existing mixed flow traffic curb lanes, like the existing Route 109 buses.

The Enhanced Bus Alternative operating plan would be similar to that of the BRT and LRT Build Alternatives, with headways that would be reduced during the weekday peak periods to every 12 minutes. This would increase the level of bus service by 25 percent over the existing condition, from 4 buses to 5 buses per hour in each direction during peak periods. In addition, the 24 bus stops in the corridor would be enhanced with shelters, benches and information displays, as appropriate, but with minimal capital expenditure.

No Build Alternative:

The No Build Alternative proposes no improvements to the existing local bus services. Under the No Build Alternative, the existing Route 109 local bus service would maintain current service with 15-minute headways (total of 4 buses per hour in each direction), operating in side/curb lanes with mixed traffic flow, and with stops spaced every 0.25-mile on average.

1.2 Regulatory Environment

NEPA requires that any agency proposing a major federal action, which may significantly affect the environment, consider the environmental impacts of the proposed action, any unavoidable adverse environmental impacts, and the relationship between local short term uses and long term productivity of the environment (42 USC § 4332(c)).

In its implementing regulations for NEPA, the Council of Environmental Quality (CEQ) states that “the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality” (40 CFR 1508.27). Significance may vary with the setting of the proposed action. Significance may vary with the setting of the proposed action.

Intensity refers to the severity of effect (40 CFR 1508.27). Factors that have been used to define the intensity of effects include the magnitude, geographic extent, duration, and frequency of the effects. Magnitude of an effect reflects relative size or amount of an effect. Geographical extent considers how wide spread the effect might be. Duration and frequency refers to whether the effect is a one-time event, intermittent, or chronic (CEQ, 1997).

By analyzing the cause-and-effect relationships resulting in cumulative effects, strategies to mitigate effects or enhance resources can be developed. Mitigation should focus on those pathways with will be the most effect for reducing cumulative effects (CEQ, 1997). To alleviate confusion regarding the nature of cumulative impacts, the CEQ issued guidance on consideration of past actions (CEQ, 2005).

2.0 METHODOLOGY

The framework for the purposes of this study included a four-step process:

Step 1 – What is the affected geographic area? The geographic area affected by the project (the study area) is the same as the study area for the indirect effects analysis and was determined at the same time.

Step 2 – What are the resources affected by the project? These are the same as the notable features identified for the indirect effects analysis.

Step 3 – What are the other past, present, and reasonably foreseeable actions that have impacted or may impact the same resources? Past, present, and reasonably foreseeable actions considered in the analysis were identified by reviewing past documentation, previous input from agencies and local government, and local comprehensive planning documents.

Step 4 – What is the overall impact on affected resources from the accumulation of the actions? This step assesses the impacts to the environment that would result from the incremental impacts of the project when added to the impacts of other past, present, and reasonably foreseeable future actions.

3.0 CUMULATIVE EFFECTS ANALYSIS

Cumulative effects (40 CFR 1508.7) result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions that affect the same resources. According to CEQ (2005) guidance, environmental analysis required under NEPA is forward-looking in that it focuses on the potential impacts of the proposed action that an agency is considering. Accordingly, a cumulative effects analysis is not merely a cataloging of the environmental impacts of past actions. Rather, the analysis considers “the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive, and significant relationship to those effects.” The aggregate environmental effects of past actions in the study area are reflected in the current state of the affected environment.

Step 1 – Affected Geographic Area and Time Frame. The geographic limits of the resource specific study areas used for the cumulative effects analysis are the same as those used for the environmental sensitive areas identified for the Maryland Parkway EA. The geographic Area of Potential Effect (APE) for the cumulative effects analysis not only takes into consideration the Maryland Parkway High Capacity Transit

project, but also the 0.25-mile radius from the proposed alignment shown in Figure 1. The timeframe of the cumulative effects analysis assumed a maximum of 15 years, which is based on local plans and available demographic information, that typically project 10 years in the future.

Step 2 – Affected Resources. During the indirect effects analysis, an inventory of notable features was performed. These same resources were also reviewed for potential cumulative effects. Existing conditions information for these resources is contained in Section 5.3 of this report. For the purposes of this analysis, the environmental baseline includes the current conditions of these resources. The social and natural resources within the indirect and cumulative effects study area have been manipulated and impacted by human development, resource extraction activities, and all of the other past and present actions described in Section 6.3. This baseline can be assumed to be further impacted by all of the reasonably foreseeable future actions also described in Section 6.3. All of these past, present, and reasonably foreseeable actions play a role in establishing the environmental baseline.

Step 3 - Other Past, Present, and Reasonably Foreseeable Actions.

Cumulative land use changes have an overarching influence on the other resources within this analysis. As a result, land use was evaluated for potential cumulative effects based on other past, present, and foreseeable future development and transportation projects. The intent was not to provide an exhaustive list of every project, but to provide a reasonable characterization of the corridor and projects that have affected or may affect the key resources under evaluation. Past projects (within the past 3 years) along the Maryland Parkway corridor include:

- The Boulevard Mall's new local owner invested \$20 million on improvements and enhancements and added 3,000 jobs. In addition, the top floors of the former Dillard's department store and of the JC Penney's department store were both converted to a call center, which adds to the daily inflow-outflow of traffic and employs nearly 2,000. The Mall is also home to SeaQuest Interactive Aquarium and John's Incredible Pizza, entertainment destinations for both locals and visitors alike. Both Build Alternatives will serve the mall and call center. Adding right turn lanes around the mall improves traffic flow for turning vehicles. Access to the mall will be maintained during construction activities.
- The Venue Las Vegas, located at 750 Fremont Street, opened in 2015 as a special events facility. It is located one block north of the Maryland Parkway Downtown segment on 8th Street. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- Steinberg Diagnostic Medical Imaging, located at 800 Shadow Lane, adjacent to the Maryland Parkway Medical District segment, opened in 2015 and is part of the planned Las Vegas Medical District expansion. Both Build Alternatives and the Enhanced Bus Alternative will serve this

development. No construction impacts are anticipated from the Alternatives. Access to the business will be maintained during construction activities.

- Redflint Innovation Center, located at 300 S Fourth St., opened in late 2016 in the Bank of American building one block south of the Maryland Parkway Downtown corridor. It is run by the University of Phoenix, offering training for students for available local jobs and working with local companies and non-profits to find solutions for technology needs. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- Federal Justice Tower, located at 501 Las Vegas Boulevard. South, opened in August 2016 and houses executive offices of multiple components of U.S. Immigration and Customs Enforcement, the U.S. Attorney's Office of the District of Nevada, the Federal Protective Services, and the Department of Labor's Office of Inspector General. The building is located about 3 blocks south of the Maryland Parkway Downtown segment. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- Courthouse Complex, located at the southeast corner of Clark Ave. and Fourth St., was completed at the end of 2016 and is home to the Nevada Appellate Court. It is located about 3 blocks south of the Maryland Parkway Downtown corridor. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- The Thomas & Mack Center at UNLV was renovated in 2016 and upgrades were made to the restrooms, concession stands, and mechanical, electrical, and plumbing systems, as well as the Si Redd Room and other events spaces. The 150 events at the center bring in 850,000 visitors annually. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- UNLV School of Medicine - Work has begun to convert previously unused space at UNLV's Shadow Lane Campus — located in the heart of the Las Vegas Medical District — into the interim teaching facility for the new medical school, which welcomes its first class of students in fall 2017. To date, UNLV has secured \$50 million in funding to build the permanent facility within the same campus across the street from two existing hospitals: University Medical Center and Valley Hospital Medical Center. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.

Current projects along the Maryland Parkway corridor include:

- Fremont 9 is located at the corner of Fremont and Ninth Street, one block north of the Maryland Parkway Downtown segment. Consists of 15,000 square feet of retail space and 231 market rate multifamily residential units to be completed mid-2017. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- University Gateway – A two-story parking garage, which includes a new 10,000-square-foot space for UNLV police and in phase two, a retail-professional space. Both Build Alternatives will serve this proposed development. The parking structure will be completed at the end of 2016 with the office and retail space to follow in 2017. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- Hospitality Hall, the new home for the William F. Harrah College of Hotel Administration, is being constructed in the heart of the UNLV campus on North Field. The building will contain interactive classrooms, a student-run cafe, an executive learning kitchen, and a learning center for the PGA golf management program. The new facility also will benefit the Lee Business School, which currently shares Frank and Estella Beam Hall with the Hotel College. Opening will be in fall 2017. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- U District – A new student complex developed in partnership with UNLV to house up to 760 students on Maryland Parkway at Cottage Grove. Construction started in 2016 with the new building under Phase I anticipated to open in spring 2018. Existing apartment units part of the same historic development still occupy the western portion of the overall site and have been renovated to house upwards of 200 students. Future redevelopment phases will occur over the next 10 years. Both Build Alternatives and the Enhanced Bus Alternative will serve this development. No construction impacts are anticipated from the Alternatives.
- The UNLV School of Medicine's newly remodeled Shadow Lane campus will open for classes starting mid-2017 and provides 20,000 square feet of classrooms, a medical library, a student lounge, a recreational gym, and student locker space. UNLV will open the first UNLV Medicine multispecialty clinic in 2019. Both Build Alternatives will serve this proposed development. No construction impacts anticipated.

Projects planned along the Maryland Parkway corridor in the foreseeable future include:

- UNLV is working with the Clark County Public Works Department to re-align Cottage Grove and Avenue with Rochelle Avenue to create a 4-way signalized intersection adjacent to its Maryland

Parkway campus near the U District student complex. This could facilitate better movement of vehicles, as well as provide a signalized crossing for pedestrians. In addition, UNLV is coordinating with Clark County Public Works Department to replace the existing hybrid pedestrian beacon crossing on Maryland Parkway at Del Mar street with full signalized crossing for pedestrians.

- The City of Las Vegas identified several new developments in the downtown area including 1,000 residential units to be built along Fremont Street between 9th and 15th Streets. Both Build Alternatives and the Enhanced Bus Alternative will serve this development.
- The Southern Nevada Strong team, in collaboration with the U.S Environmental Protection Agency (USEPA), recently worked with a consultant team to identify sites that are currently underutilized and could spur development along Maryland Parkway. The team will continue these meetings with community leaders, jurisdictional staff and area stakeholders to further promote redevelopment that supports the goals of the Southern Nevada Strong Regional Plan.
- Las Vegas Medical District, located between I-15 & Rancho Drive near Charleston Blvd. Business and government leaders have begun working on a plan to expand the Las Vegas Medical District from its current 200 acres to at least 680 acres. While currently offering the largest concentration of health-care services in the Las Vegas Valley, an expanded district would allow for additional health-care opportunities, including the possibility of a medical mart. Available areas for expansion include Charleston Boulevard west to Valley View Boulevard, along Martin L. King Boulevard and in Symphony Park. Both Build Alternatives will serve these proposed developments.
- Clark County Regional Flood Control District has identified future projects in the Maryland Parkway study area from fiscal year 2017 through fiscal year 2026 (Clark County Regional Flood Control District, 2016).
- Central –Sahara Avenue – Las Vegas Boulevard to Maryland Parkway. This project consists of a 14-foot by 14-foot reinforced concrete box culvert in Sahara Avenue from Las Vegas Boulevard to Maryland Parkway. Design is programmed in fiscal year 2022/23. Construction funding is programmed in fiscal year 2025/26. Construction coordination would be required in this area if either of the Build Alternatives' construction occurred at the same time.
- Central – Flamingo Wash – Maryland Parkway System – This project consists of an 8-foot by 6-foot reinforced concrete box culvert in Maryland Parkway from Stewart Avenue to Charleston Boulevard. Design is programmed in fiscal year 2016/17 and construction funding is programmed in fiscal year 2019/20. Construction should be completed prior to the construction of the Build Alternatives.

- Tropicana/Flamingo – Flamingo Wash Maryland –This project consists of 90-inch reinforced concrete pipe in Maryland Parkway from the Flamingo Wash to University Road. Design is programmed in fiscal year 2022/23 and construction funding is programmed in fiscal year 2024/25. Construction coordination would be required in this area if either of the Build Alternatives’ construction occurred at the same time.

While it is not possible to accurately quantify the changes in land use, right-of-way acquisition, or relocations that other projects might require, the projects which have potential to cause these types of changes were identified to the extent possible, to provide context for the effects of the project on a larger scale. In addition, the alternatives are considered in the context of historic trends and overall expected land use changes in the County.

Step 4 – Overall Impact on Affected Resources.

This section describes the potential cumulative effects associated with the Build Alternatives and their consequences. The No Action Alternative would not contribute to any potentially negative cumulative effects within the study area and it also would not provide any positive cumulative effects.

Land Use

The combined effects of potential induced growth due to the Build Alternatives, as discussed above, and other past, present, and future actions as listed above, would create a cumulative land use effect within the study area. The cumulative effect would further focus development along the transit route and is likely to encourage higher density and mixed-use development along the route. The cumulative effect may also accelerate the pace of development within the APE and along the route.

Anticipated land use change along the Maryland Parkway project alignment is supported by the regulatory planning documents, including the Clark County Comprehensive Master Plan (Clark County Department of Comprehensive Planning, 2014), the Southern Nevada Strong Regional Plan (Southern Nevada Strong, 2015), and the Vision 2045 Downtown Las Vegas Master Plan (City of Las Vegas, 2016). These planning documents aim to promote a compact, mixed-use development pattern in the area of and along the project corridor. LRT and BRT are integral in planning documents to connect major employment centers and destinations and would have positive effects in the area of and along the project corridor. Any negative effects from land use or zoning changes would be managed through the local agency’s existing planning and permitting authority.

Socioeconomics

Cumulative socioeconomic effects will likely be a result of the past, present, and future actions that occur in the project corridor along with the direct and indirect economic effects associated with the Build Alternatives. Construction and operation of either the LRT or BRT systems creates direct and indirect jobs,

which cumulatively contribute to the employment base in the project study area. The Enhanced Bus Alternative would also have a positive impact on the low income and minority communities, but not to the extent of the Build Alternatives. Economic benefits would also be expected from development and redevelopment potentially by the project along the alignment. RTC would fund, operate, and maintain the service, procuring capital, operating, and maintenance funds from both federal and local sources.

Environmental Justice

Either of the Build Alternatives along with existing transit services in the corridor would have a positive cumulative effect on environmental justice populations in the study area. The LRT and BRT technologies are both expected to increase mobility and quality of life for those who depend on transit, including the elderly and disabled. The Build Alternatives would increase access to employment, recreation, and goods and services within the study area. The Enhanced Bus Alternative would also have a positive impact on the Environmental Justice community, but not to the extent of the Build Alternatives.

Visual Resources

LRT infrastructure, including the electric system and stations would alter existing views. Minimal cumulative negative effects are expected as Maryland Parkway is a heavily used transportation corridor in a dense urban setting dominated by buildings, sidewalks, light poles, and bus shelters. Development will continue to occur along the proposed alignment; however, the rate of development and change to the visual resources may be accelerated with the Build Alternatives. Adding vegetation to road medians and along pedestrian facilities throughout would benefit adjacent residents and businesses and the traveling public. The Enhanced Bus Alternative would not have a negative impact on visual resources, because of the existing bus service that is currently running in the Maryland Parkway corridor.

Cultural Resources

Construction of either of the Build Alternatives along the proposed project alignment, in addition to past, present, and future projects, overlap previously heavily developed areas. This transportation corridor is flanked by commercial and residential buildings and other infrastructure. Initial construction and redevelopment of the roadways, as well as grading, utilities, and resurfacing would have disturbed the area, thereby eliminating the potential for intact archaeological resources. Several historic buildings occur within the study area and in surrounding communities. There would be no impact from the Enhanced Bus Alternative on historical structures.

Water Resources/Water Quality/Floodplains

Cumulative effect of transportation projects and other development in an urban setting often results in alteration of topography, changes in water flows and water quality, and increases in sediment and contaminant runoff into streams and drainages. The Build and Enhanced Bus Alternatives will occur on

existing paved streets that have been highly disturbed and, with appropriate mitigation measures in place, would not have a cumulative effect on the study area.

Soils and Geology

Cumulative effect of transportation projects and other development in an urban setting often results in alteration of topography. The Build and Enhanced Bus Alternatives will occur on existing paved streets that have been highly disturbed. Disturbed soil from the construction of either Build Alternative and past, current, and future projects could affect air quality in the study area, which would cause a cumulative effect. However, regulatory guidelines and permits would require the use of appropriate mitigation measure on all projects in the region to minimize cumulative effect on the study area.

Hazardous Materials

Hazardous materials are generally not expected to be found within the project corridor. Additional development could cumulatively increase the potential for hazardous materials to be released into the environment. However, this effect would be minimized because existing local, state, and federal laws would manage the disturbance, removal, and disposal of hazardous materials. Future projects could disturb additional lands within the study area and locate unknown hazardous materials, which would require some level of clean-up and improve the environment in the study area. However, the presence of hazardous materials could cause delays in development projects because hazardous waste would need to be remediated.

Air Quality

Air quality in the study area today is good compared to years past. Projects in the past, current, and foreseeable future could have negative contributions to air quality in the study area; however, regulatory guidelines and permits would require the use of appropriate mitigation measures on all projects in the region to minimize cumulative air quality effects on the study area. Therefore, the Build and Enhanced Bus Alternatives would not contribute to cumulative effects. In fact, the use of LRT or BRT systems would improve air quality by removing motor vehicles off the roads.

Noise and Vibration

Direct and construction impacts from noise are anticipated, but no substantial cumulative effect is expected in an existing urban setting with existing noise from daily activities. Mitigation will help reduce any cumulative effects. Noise generated from an LRT vehicle would be less than the existing noise measurement along the busy and heavily-traveled Maryland Parkway corridor. For the BRT Build Alternative, noise levels from the addition of CNG-fueled BRT buses would also likely be less than existing noise measurements from diesel-fueled buses currently operating along the corridor. There would be no increase in noise from the Enhanced Bus Alternative.

Due to its relatively low speed of travel of both LRT and BRT vehicles (between 25 and 30 mph) the operation of the two Build Alternatives is not anticipated to create vibration impacts to nearby building structures located along the Maryland Parkway corridor. Even with potential for future projects to be occurring at the same time the Build Alternatives are being constructed, noise and vibration effects would be minimal.

Safety and Security

The Build Alternatives provide pedestrian amenities for convenience and safety, including crosswalks, sidewalks, and mid-block crossings with pedestrian hybrid beacons, traffic signals, or other related devices to alert motorists to the presence of pedestrians and facilitate safe crossings. This would also improve access to other future projects, which would have a beneficial cumulative effect.

Wetlands/Jurisdictional Waters

No wetlands occur in the study area, so no cumulative effects are anticipated from past, present, or future projects. The one jurisdictional waters of the U.S. in the study area has been highly manipulated and contain a concrete-lined channel. Appropriate mitigation through best management practices would avoid or minimizes impacts to this resource.

Biological Resources

No biological resources were identified in the study area, so no cumulative impacts are anticipated.

Section 4(f)

No parks will be impacted as part of the Build or Enhanced Bus Alternatives and there does not seem to be any current or future projects planned that would impact parks in the study area. Therefore, no cumulative impacts are anticipated from the Enhanced Bus or Build Alternatives.

Traffic

The Enhanced Bus and Build Alternatives would provide increased transit service to the project study area. This would cumulatively benefit transit services within the project study area by creating a frequent and convenient connection to the bus services and reduce future growth in auto trips.

4.0 CONCLUSION

In conclusion, the direct and indirect impacts of either the No Action Alternative, Enhanced Bus Alternative, or Build Alternatives do not incrementally result in a substantial cumulative impact for the resources analyzed. Land in the cumulative impact study area will continue to be developed for a variety of uses regardless of which alternative is selected. Transit and vehicle use of the corridor is also projected

to increase regardless of which alternative is selected. These two factors have been, and remain, the primary cause of impacts to land use. The manner in which development and use occurs and is managed by local and federal agencies with jurisdiction in the area will shape the environment into the future. When combined with other past, present, and reasonably foreseeable future actions, the No Action Alternative, Enhanced Bus Alternative, and the Build Alternatives are not expected to substantially adversely impact the resources analyzed.

5.0 REFERENCES

City of Las Vegas. 2016. Vision 2045 Downtown Las Vegas Master Plan.

<https://www.lasvegasnevada.gov/cs/groups/public/documents/document/chjk/mdex/~edisp/prd011906.pdf>

Clark County Department of Comprehensive Planning. 2015. Clark County Comprehensive Master Plan. November 23, 2015. <http://www.clarkcountynv.gov/comprehensive-planning/advanced-planning/Documents/1.6%20PRINT%20COMP%20PLAN%20WITH%20ATTACHMENTS%20FOR%20POSTING%2023%20NOV%202015.pdf>

Clark County Regional Flood Control District. 2016. Ten-Year Construction Program: Fiscal Year 2017 through Fiscal Year 2026. Adopted June 9, 2016.

http://gustfront.ccrfcd.org/pdf_arch1/Administrative/Ten%20Year%20Program/Ten%20Year%202017-2026.pdf

Council of Environmental Quality (CEQ). 1997. Considering Cumulative Effects under the National Environmental Policy Act. January. https://ceq.doe.gov/publications/cumulative_effects.html

CEQ. 2005. Guidance on the Consideration of Past Actions in Cumulative Effects Analysis.

Memorandum from James L. Connaughton, Chairman, Council on Environmental Quality, Executive Office of the President, to Heads of Federal Agencies. June 24, 2005.

Southern Nevada Strong. 2015. Southern Nevada Strong Regional Plan. January.

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