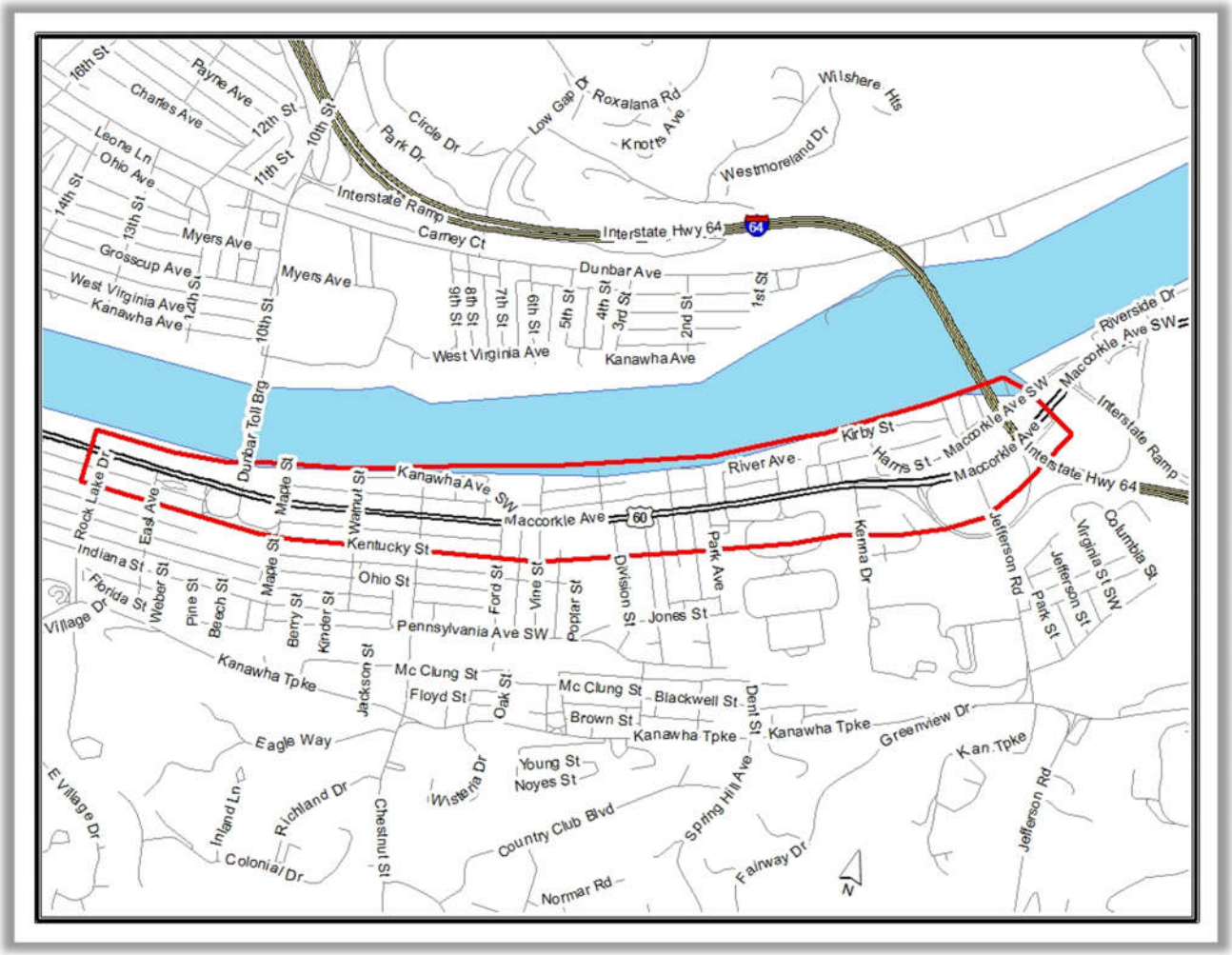
Spring Hill Corridor Study – Executive Summary

As recommended in Metro Mobility 2040, this study of the MacCorkle Avenue corridor within the Spring Hill area of South Charleston intends to analyze existing and future transportation conditions including traffic flow, traffic volumes, crash rate and traffic signal operations for the existing roadway. The traffic simulation software TransModeler has been utilized to analyze current and future transportation deficiencies. Accident records from 2009 through 2011 have been evaluated to determine the areas of excessive crashes. Potential improvements have been identified and ranked according to impact and effectiveness.



The study area encompasses a 1.48 mile section of MacCorkle Avenue (US 60) in South Charleston from Rock Lake Drive (mp 9.69) to Jefferson Road (mp 11.17) and contains eight signalized intersections. Throughout this corridor of MacCorkle Avenue there are five lanes with intermittent on-street parking. This corridor was part of a larger corridor review completed in 1982; since that time there have been many changes in land use and intersection

improvements. This section of MacCorkle Avenue has been identified as a congested area, with an annual average daily traffic (AADT) flow of over 12,000 in 2010, and contains higher than average historical accident rates. The area has seen employment growth in recent years; the trend is expected to continue. Commercial growth typically leads to a decrease in population with employment increases. Approximately 17% growth in employment is expected between 2010 and 2040; conversely the same loss is expected in population.

An existing conditions summary and a crash analysis were produced in order to identify deficiencies within the transportation network. Many of these deficiencies were related to signage, parking, pavement markings, or lane width all of which are small improvements that can make a larger impact to the overall flow and appearance of the corridor. Some deficiencies would require a large scale project to improve the corridor. To accurately address deficiencies and show potential improvements, several low cost improvements have been identified and grouped together to form scenarios within the simulation software, TransModeler.

For this corridor study, TransModeler was utilized to conduct simulations in order to examine and compare outcomes of recommended projects on existing and future traffic volumes. Using an origin-destination (O-D) matrix, TransModeler routes trips based on dynamic assignment. Five different simulations were created for this study: a base simulation, a future no-build simulation, and three proposed improvement scenarios (Scenario A, B, and C) suggesting various changes to the roadway.

Scenario A recommends many basic improvements to the existing roadway; pavement marking improvements, utility relocation, signal optimization and removing on-street parking. Scenario B and C include all recommendations from Scenario A and also suggest a larger scale project. Scenario B recommends moving the Dunbar Toll Bridge Entrance ramp to align with the current Dunbar Toll Bridge Exit ramp. Scenario C recommends converting four narrow side streets into one-way traffic, creating one-way pairs in order to increase traffic flow volume.

Based upon the project selection matrix scores, the projects encompassing Scenario A scored highest. The projects recommended under Scenario A are simple and should prove effective at reducing delays and improving the level of service. Detailed information regarding the Existing Conditions Summary, Crash Analysis, Traffic Model Simulation, and the Project Selection Matrix can be found in the Final Report. Included below is more detail concerning specific projects suggested within Scenario A and potential problems implementing these projects.

Summary of Recommendations for Scenario A:

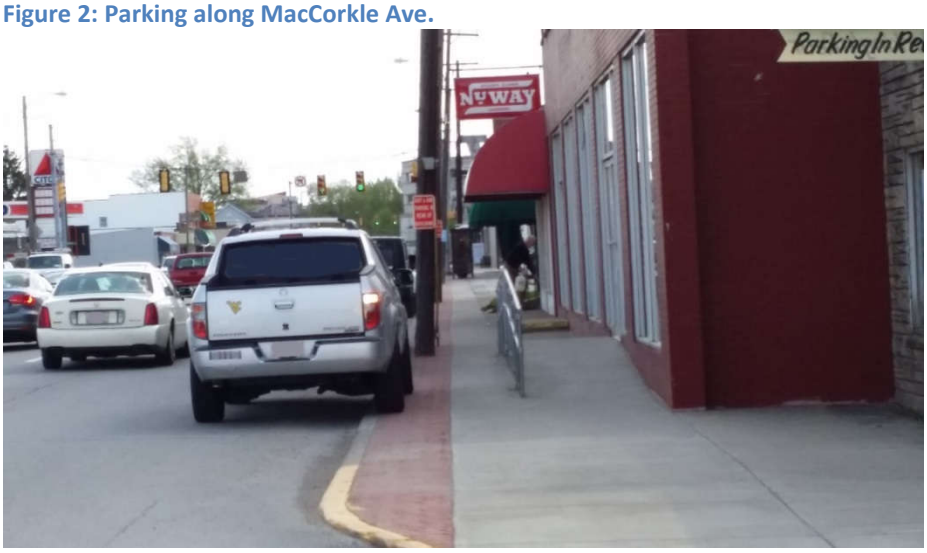
- Signal Optimization
- Consistent traveling lane width.
- Repurpose on-street parking for wider sidewalks or extension of bike lane.
- Make center turn lane consistent throughout corridor.
- Relocate utilities or take necessary steps to follow ADA accessibility guidelines in sidewalk construction.
- Correct intersection of Kenna and MacCorkle Ave.

There are eight coordinated traffic signals through this corridor; traffic volume growth can affect the efficiency of a traffic signal. Signal optimization is one of the most cost-effective ways to improve traffic flow, and is recommended in this scenario. Throughout the corridor, lane width should be made consistent and pavement markings upgraded. Additionally, the existing on-street parking should be removed and the center turn lane made constant. With a consistent roadway width, existing right-of-way would allow for wider sidewalks or the addition of a bike lane. Along MacCorkle Avenue and several side streets, there are crumbling curbs and narrow sidewalks which need repaired. If these sidewalks were slightly widened and the utilities were relocated, the sidewalks would become wheelchair accessible. It is also recommended to alter the intersection of Kenna and MacCorkle Avenue to a standard plus intersection. Currently, the westbound approach on MacCorkle Avenue includes an old bus pull off, which is under-utilized. This unconventional right turn lane causes some drivers to overlook the turn lane and congest traffic in the slow lane while turning right; this was evidenced during field reviews.

Figure 1: Kenna and MacCorkle Ave.

Currently, the left (or fast) lane remains a constant width while the right (or slow) lane varies. On-street parking is also inconsistent and lacks proper signage and pavement markings. Inadequate signage allows for on-street parking in places where there is insufficient space; this creates at the best a delay in traffic and at the worst a collision. As evident in Figure 2, there is not adequate parking space along MacCorkle Avenue, causing cars to park on the sidewalk which impedes pedestrian flow and damages the sidewalk. As noted in the Crash Analysis for the intersection of Chestnut Street and MacCorkle Ave, sideswipe accidents have remained constant over time where on-street parking occurs; yet the overall accident rate has decreased. This suggests overall roadway safety is increasing while on-street parking is resulting in sideswipe collisions.

Figure 2: Parking along MacCorkle Ave.



Currently, left turns from the westbound direction of MacCorkle Avenue to south Chestnut Street are prohibited (see Figure 3 for an aerial view of the intersection). This section of MacCorkle Avenue does not have a center turn lane, due to inadequate space. If on-street parking was removed and lane widths made consistent the center turn lane could be added, making left turns onto Chestnut Street permissible. Some drivers make illegal left turns onto Chestnut Street from MacCorkle Avenue. More drivers cut through a closed gas station to access North Chestnut and then drive straight through the intersection. During stakeholder interviews, it was mentioned that the previous business owner would frequently complain of drivers cutting through his property. During a field review, several vacant lots were identified as potential parking lots; in Figure 3 only two have been highlighted.

Figure 3: Chestnut Street Intersection

It is important to note that removing on-street parking has been recommended in past transportation studies and never fully implemented. Interviews with stakeholders have suggested local business owners feel the removal of parking will negatively impact their business. Discussions with the City of South Charleston confirm this issue. However, it is clear that removing on-street parking would improve the flow and safety of MacCorkle Avenue through Spring Hill. There are existing vacant lots near businesses that could be converted to parking.