

TSPLOST 2023 Project Submission

Transportation & Public Works Department (T&PW)
September 8th, 2021

Traffic Signal Replacement Program

Traffic Signal Replacement Program

Summary of need:

- Many older signals do not meet minimum height restrictions, impairing visibility and creating safety issues
- Many older signals are built using utility joint-use poles that are nearing end of life span
- Wiring in older signals, exposed to elements is more likely to be brittle – more likely to expose technicians to electrocution and malfunction in poor weather
- Newer signals include safety elements including LED indications, reflective back-plates, flashing yellow arrow operation and compliant pedestrian features
- Signal heads exposed to the elements malfunction: access doors break and the plastic gets brittle. Typical lifespan of a signal head is 8-years. (Operating budget provides equivalent funding for one signal head per signal per year)
- Project request is to rebuild 8 traffic signals per year

Project Request:

- Project Costs (Annual): \$2.71 million
- Project Costs (Total – 5 year): \$13.55 million
- Program/Project Management: \$774,000
- Public Art: \$107,000
- Total Request: \$14.43 million



Traffic Signal Replacement Program

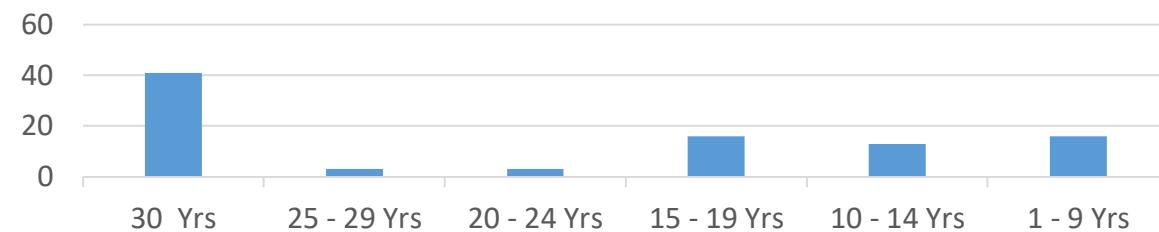
Project Description:

- Rebuild aging traffic signals including poles, controller equipment, signal heads, signal wire, and supporting infrastructure
- Install warranted, MUTCD approved traffic signals as determined by an engineering traffic study

Project Justification:

- Athens-Clarke County maintains 173 signals: 91 owned by ACCGov, 6 by UGA, and 76 by GDOT. (UGA has rebuilt 5 of their intersections within the last 3 years with concern of the maintenance issues provided by ACC Traffic Engineering staff)
- The average age of ACC-owned traffic signals is 22 years, 36 traffic signals are more than 30-years old. National Standard lifespan of the infrastructure for a traffic signal is 13 years
- With more age, traffic signals continue to malfunction more often, create safety hazards for technicians, and are more expensive to maintain

ACC Traffic Signal Age Analysis



Traffic Signal Replacement Program

10 Priority Signal Replacements (≈40 years old)

- Broad St/First St/MLK Pkwy (1979)
- College Ave/Ruth St/MLK Pkwy (1978)
- Beaverdam Rd/Cherokee Rd/Buddy Christian Way (1978)
- Athena/Old Hull (1984)
- Baldwin St/East Campus Dr/Thomas St (1978)
- Baldwin St/Jackson St (1978)
- Bocock St/Wray St/Lumpkin St (1978)
- Carlton St/Lumpkin St (1978)
- Cedar St/University Ct/Lumpkin St (1978)
- Clayton St/Hull St (1978)

Currently Warranted Traffic Signals

- Tallassee Road at SR10 Outer Loop Ramp
- Commerce Road / US 441 at SR 10 Outer Loop Ramp
- Hwy 29 at Harve Mathis Rd

Traffic Signal Replacement Program

Budget Impacts:

- More effective use of General Fund Operating Budgets
- General Fund Capital, Signal Replacement (c0094) savings:
 - FY19: \$100,000
 - FY20: \$200,000
 - FY21: \$200,000
 - FY22: \$75,000

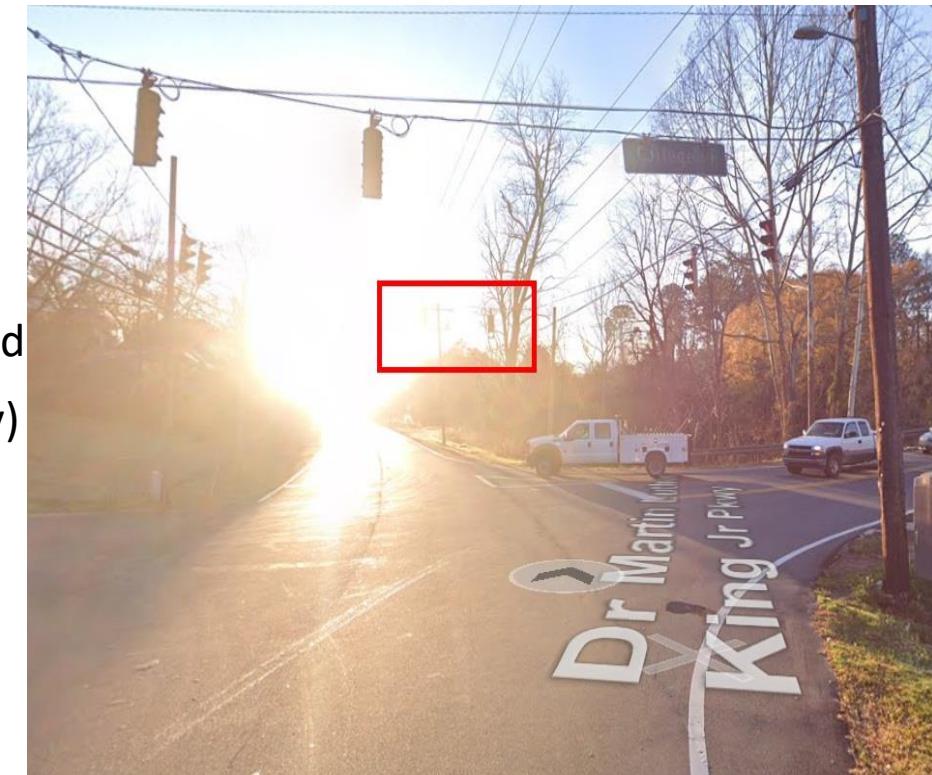
Community Impact:

- Improved reliability and operations of traffic signals with reduced delay for all roadway users
- Enhanced safety through reflective backplates, flashing yellow arrow, pedestrian signals, crosswalks, and correct heights for sight alignment
- Minimize the impacts of malfunctioning traffic signals for pedestrians, bicycles, transit and all vehicles

Traffic Signal Replacement Program

Impacts of Not Funding:

- Functional obsolescence of traffic signals as technology continues to change (40% of traffic signal equipment exceeds 30-years)
- Structural failure of traffic signal poles
- Increased frequency of signal malfunctions
- Increased spending on overtime to manage after-hours failures
- Inability to signalize intersections that justify traffic signal installation
- Safety and Liability issues with infrastructure and operations (outdated signal heads without backplates create safety hazards due to visibility)
- By 2025 there will be another 20 intersections within the 20-25 year age range, an additional \$7 million for these replacements
- Material and installation costs have increased just under \$1 million since the project was last submitted for the 2018 TSPLOST



Closing the Equity Gap

- Rebuilding the outdated traffic signals will reduce the capital funding that currently will never reach the goal of sustainability due to the number of intersections past the recommended life span of 13 years. Updating the signals will allow the equitable funding through capital to maintain the rebuilds needed and reduce maintenance to improve the overall community through roadway efficiency
- The rebuild priority list is based on the quantity of non-standard equipment within the intersection along with the maintenance history. The priority is safety issues due to age and condition



M&C Strategic Commitments

- This project strongly supports 10 of the 14 project selection criteria
- Updated traffic signals offer the ability to use **smart connected technology** and interact with alternative transportation by adapting to the demand of roadway users
- Reduction in travel time results in less time spent on the roadway. Traffic signals with updated equipment, including connected technology and detection systems, increase efficiency for all roadway users
- Pedestrian detection with updated intersections will reduce the wait times for walking access even during high vehicle volumes by adaptive timing and operational detection equipment. Updated traffic signals also standardize additional pedestrian safety features including ped signals, electronic button activation systems and advanced ADA accessibility. Updated technology reduces delay and improves service for pedestrians and bicycles. For example, recent advances in pedestrian button stations now allow for a “no touch” feature including audible signal for ADA benefits. Bicycles are included in the advanced detection to an adaptive/increase on the clearance (yellow/red) times so that cyclists are clear of the intersection

Triple Bottom Line Impact

- Economic
 - Current updated traffic signals can operate with adaptive technology and increased efficiency by serving a higher volume of roadway users. The increased service capability can promote project development and economic growth with improved access by vehicles, pedestrians and freight shipments/delivery
- Social Well-Being
 - 40 percent of ACC owned traffic signals have little or no detection for vehicles or pedestrians. The upgrades will bring the intersections to current standards that are capable of providing a higher level of service to all users within roadway systems
- Environmental
 - Providing an increased level of service for intersections will reduce environmental impacts such as air and noise pollution from vehicle congestion. Upgrading these traffic signals to current technology and infrastructure standards allows for a more efficient traffic, pedestrian and transit movement with less delays

Questions