

Group C2.05 - City of Buda Roadway Project

Cayla Kozik, Faith Hadley, Koket Jimata
Sponsor: Ramon Ojeda-Pena- WSB



Project Outline

- The City of Buda is addressing safety and traffic flow concerns at Main Street and Jack C. Hayes Trail.
- The current intersection lacks pedestrian crossings, signals, and turning lanes.
- Congestion has increased due to the rapid growth of the surrounding city.

This project aims to:

- Enhance pedestrian safety
- Improve traffic flow
- Meet local access needs

Pavement Design

Mill-and-Overlay

- ESAL calculation method
- Reduced construction cost
- Shorten access road closure
 - Improve ride quality

Alternatives Considered

During this project we began by considering 4 Different Alternative

- Alternative 1: Roundabout
- Alternative 2: Signalized Intersection
- Alternative 3: Channelized Right turns
- Alternative 4: Green T Intersection

- Although each of these solutions offer great benefits, we decided to move forward with Signalized Intersection due to its ability to meet the City of Buda's needs.

Engineering Solution



- Three Traffic Signals
- Added Pedestrian Crossings
- Newly Paved Parking lots
- Driveway-Tie ins

Constraints & Standards

- TxDOT
- Envision
- USDOT
- AASHTO
- TRCT

Cost Summary

Capital Cost

Item	Rates	Estimated Cost
Bid Item Subtotal		\$475,000
Allowances		\$91,000
Design and Engineering Subtotal	10%	\$50,000
Contingency	25%	\$150,000
Total		\$906,000

Life Cycle Cost

Cost Component	NPV (USD)
Initial Construction	\$738,960
Routine Maintenance (Annual \$20,000)	\$345,840
Energy Costs (Annual \$5,000)	\$86,460
Rehabilitation Year 15	\$166,580
Salvage Value Year 30	\$-46,250
Total Life Cycle Cost (NPV)	\$1,291,600

Signalized System Design

- High safety for pedestrians
 - Best traffic flow improvement with turn lanes
- Provides the best business driveway tie-ins
 - Supports emergency vehicle use

Smart Infrastructure

All three signals will include:

- Mounted video detection cameras
- Adaptive signal controllers
- Right turn lane vehicle detection
- Pedestrian Buttons with real time motion sensors

Group Photo

