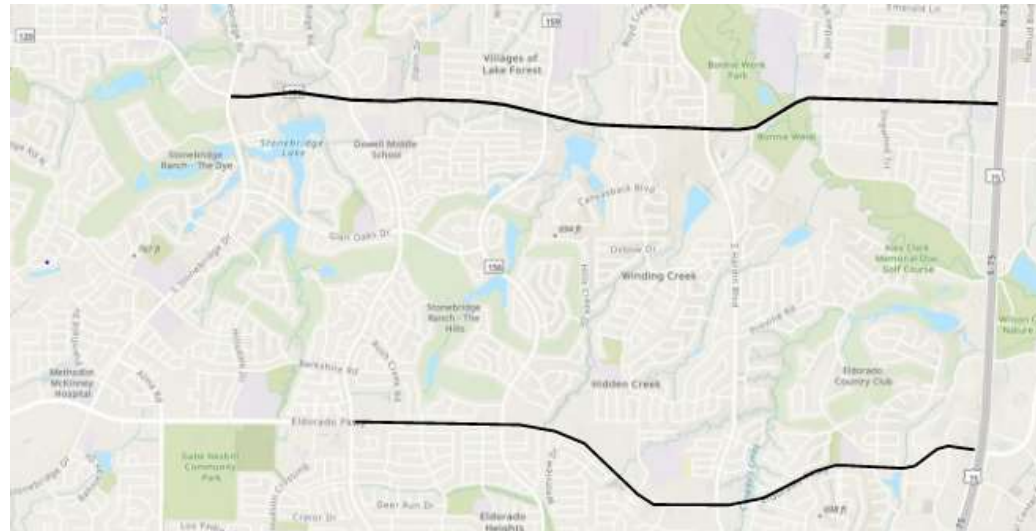


Panel Replacement: Eldorado and Virginia Parkway



City Council Work Session

May 20, 2025

Agenda



Background



Issues



Options for Repair



Analysis

Background



Eldorado Parkway and Virginia Parkway Facts

| | Eldorado Parkway (Ridge Rd to US75) | Virginia Parkway (Stonebridge Dr to US75) |
|---------------------------|--|---|
| Dates Constructed + Age | 1987 to 1996 30 to 40 years old | 1988 to 1991 35 to 40 years Old |
| Functional Classification | Major Arterial | Major Arterial |
| Design | 8" Concrete 4 Lanes | <u>US 75 to Bellegrove (TxDOT)</u> 9" Concrete, 2" Asphalt <u>Bellegrove to StoneBridge</u> 8" Concrete 6 Lanes |
| Expected Life Span | 30-50 Years | 30-50 Years |
| Vehicle Volumes (2023) | 24,285 to 31,230 Vehicles per Day | 20,930 to 39,543 Vehicles per Day |



What are the Current Challenges?

Poor Existing Surface as the Result of Failed Concrete Panels



Pothole



Concrete Failure



Subgrade Failure

Impact on
Community:

1. Safety Concerns
2. Vehicle Wear & Tear
3. Reduced Quality of Life



Design Considerations for Concrete Roadways

| Consideration | Impact |
|----------------------------------|--|
| Truck Traffic Volume & Weight | More Trucks, Thicker Pavement Section, More Reinforcement |
| Total Vehicle Volume | More Vehicle Volumes, More Robust Design |
| Subsurface Conditions | Thicker Pavements, Additional Excavation, Subsurface Improvements |
| Design Life | Longer Design – Thicker Pavement Section |
| Available Resources | Balance Between Cost and Design Life *Standardized Designs* |



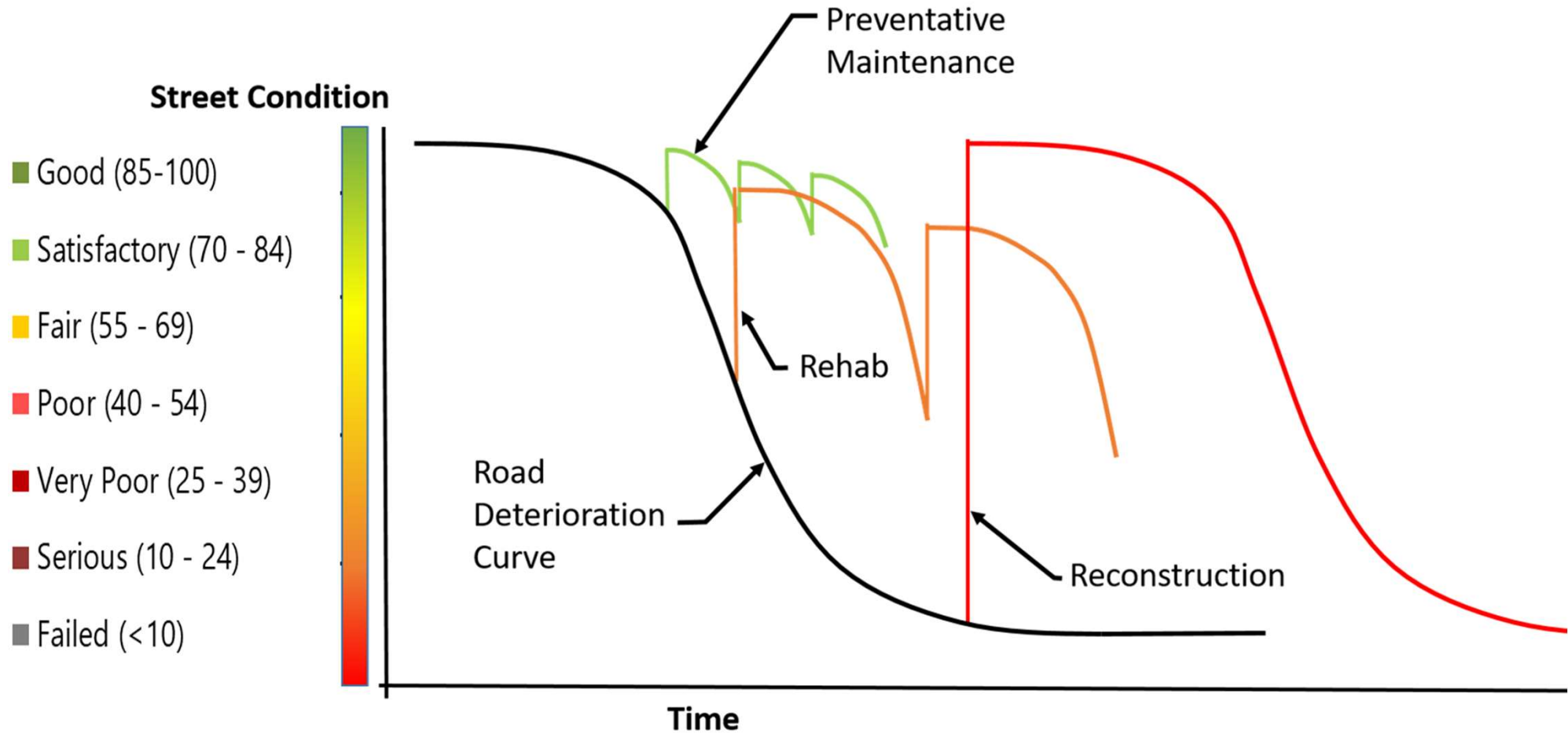
How Has Pavement Design Changed?

| | Original Design | Current Panel Replacement Design |
|---------------------|------------------------|----------------------------------|
| Concrete Strength | 3000 psi | 4000 psi |
| Steel Reinforcement | No. 3 bars | No. 4 bars |
| Subgrade | 6" lime/cement treated | 6" Flexbase |

***New roadways are now designed utilizing geotechnical investigations.**



Expected Design Life of Concrete Roadway





How Are Concrete Roads Repaired?



Spot Patching



Panel Replacements



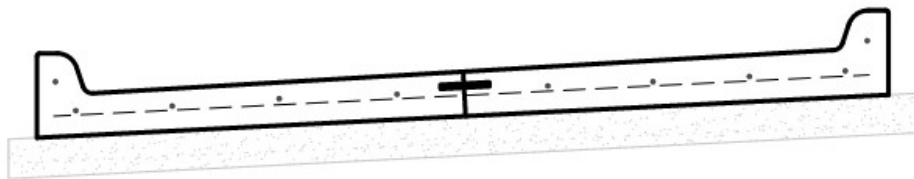
Resurfacing/Overlay



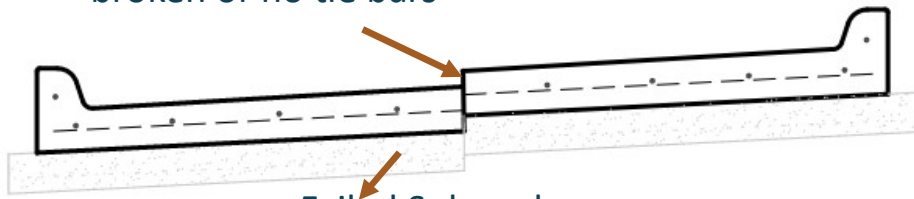
Reconstruction



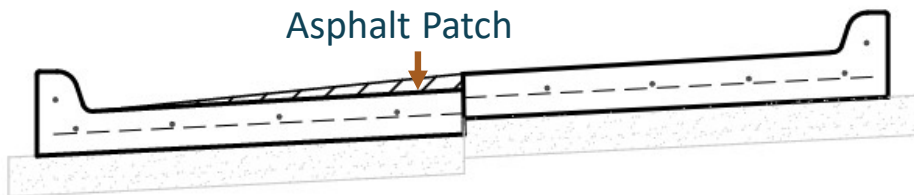
Why Did Eldorado Fail Just East of Ridge?



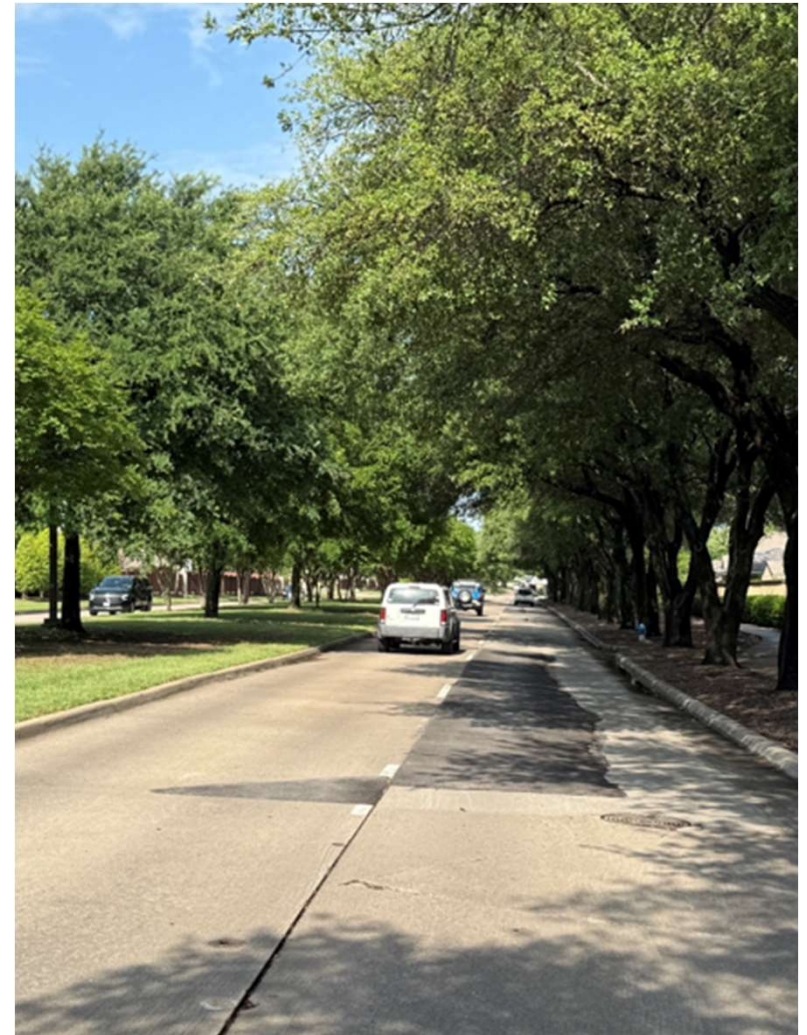
Differential
Settlement with
broken or no tie bars



Failed Subgrade
allows road to sink



Asphalt Patch





Typical Roadway Delivery Process

- | | |
|---------|--|
| Step 1: | Evaluation Repair Method Selection Budgeting |
| Step 2: | Design Project Bid Project |
| Step 3: | Construction |



Plan for Eldorado and Virginia

Step 1: Evaluation / Repair Method Selection / Budgeting

“Right Treatment at the Right Time”

- Generally concrete and subsurface failures.
- Where are we on the curve?
- Use percentages to help guide selection.
- 20-30% of panel replacement, start considering reconstruction.

Eldorado Panel Replacement: $\frac{23,650 \text{ SYD (identified for replacement)}}{136,750 \text{ SYD (total panels)}} = 17.3\%$

Virginia Panel Replacement: $\frac{29,993 \text{ SYD (identified for replacement)}}{207,870 \text{ SYD (total panels)}} = 14.4\%$

Eldorado: \$3.5M for panel replacement vs. \$38.5M for reconstruction

Virginia: \$4.8M for panel replacement vs. \$45.1M for reconstruction



Plan for Eldorado and Virginia

Step 2: Design and Bid Project

- Started evaluation in 2023
 - Project included in CIP in 2024
 - Project timeline has taken longer due to:
 - In-house design
 - Staff bandwidth
 - Procurement process
- Hindsight: Consider hiring a consultant to complete plans and specifications



Plan for Eldorado and Virginia

Step 3: Construction

| | |
|-------------------|---|
| Council Approved: | April 15, 2025 |
| Contractor: | Garret Shields Infrastructure, LLC |
| Bid Amounts: | \$3.5M – Eldorado \$4.8M – Virginia |
| Schedule: | 365 Calendar Days June 2025 – Start June 2026 – End |
| Approach: | 4 Segments – Eldorado 5 Segments - Virginia |



Plan for Eldorado and Virginia

Step 3: Construction

Communications Plan

- Message Boards
- Letters to Businesses
- Social Media
- Website



Future Roadway Considerations

- Ongoing monitoring of Eldorado & Virginia
- Overlays to improve driving surface if needed (patching still required)
- Reconstruction
- Completion of next Roadway Assessment Program
 - Every 3-5 years
 - Data collection set to begin within several months
 - City Council Presentation planned for 4th quarter 2025