

Detroit Metropolitan Airport Blue Deck

RESTORATION OF A MEGA PARKING STRUCTURE

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Blue Deck Restoration – Complete Phase 1A,B,C,D, & 2B



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A 4-year Restoration Program – Summary

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Presentation Sequence

- Thumbnail sketch of Original condition
- Run-thru of program highlights (basically a yearly summary)
- Listing of outstanding major maintenance pending.

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Program Staging

- 1A – Rooftop West Deck – July - Oct 2006
- 1B – Rooftop East Deck – April - Oct 2007
- 1 C,D – Lower levels (E/W) – Oct. 2007- Nov. 2008
- 1 C,D – Lower levels C.O. #2 – May 2009 - Sept. 2009
- 2B – Stair towers – May 2008 - March 2009
- 2B – Stair towers C.O. #1 – Sept. 2009 - Oct. 2009

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West and East Deck Rooftop Restoration

- Overlay with drainage improvements
- Expansion joint - refitting including Transfer Beams
- Tee to Tee Shear Transfer restoration
- New Drains – Reconfigured system
- Shear Wall - reconnection and strengthening

East Deck

- Targeted overlay and major deck coating other typical repairs as noted above.

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Governing Implementation Considerations

- Minimize Parking Disruption
- Minimize Operation Patron Inconvenience
- Keep Project on Critical Path to Completion
- Keep Project on Budget - UNDER BUDGET of \$6.3M. (Two owner requested change orders total \$150,000.)
- Maintain Project Quality at ALL TIMES

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Concrete deterioration

- Cracking, spalling and Freeze-thaw Damage
- Isolated Structural Connector Failure at Shear Walls

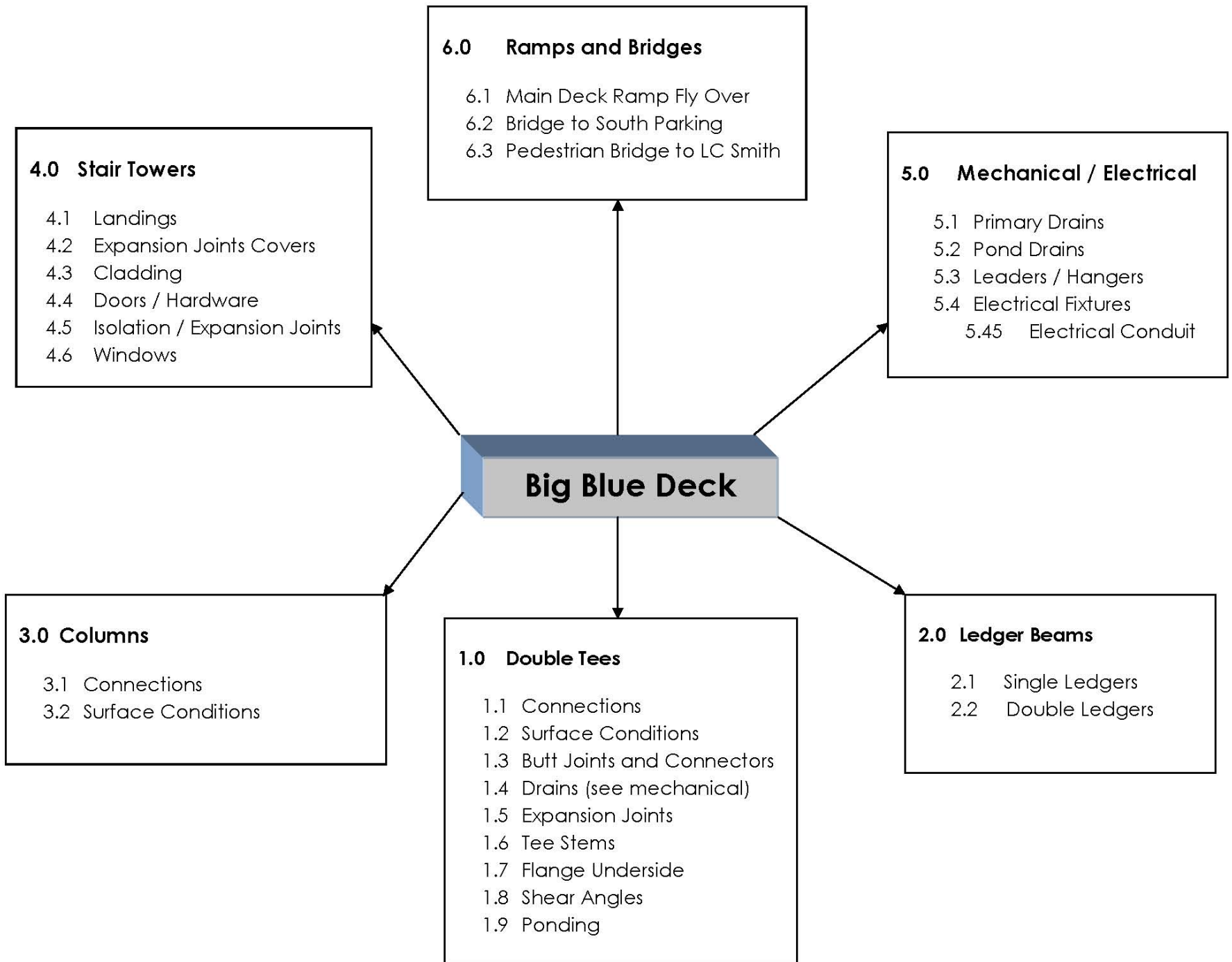
Joint sealant failure

- Control, Expansion and Isolation Joints
- Double tee Flange/ledger Connector Failure
- Drain System deterioration (Basins/risers)
- Stair Enclosure Leaking and Tread/riser Decay

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Investigation and Reporting

- Visual observations and Materials testing
- Analysis and evaluations
- Alternatives review and selection
- Schematics and cost estimating
- Report (Findings, Conclusions and Recommendations)
- Report presentation – Owner input merging



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Program Selection & Implementation

- Phase 1A Rooftop West HP (LMC) Concrete overlay
- Phase 1B Rooftop East Overlay and deck coating
- Phase 1C Stairtower repairs
- Phase 1D Flyover critical Maintenance
- Phase 2 Lower level Restoration and subcritical Items

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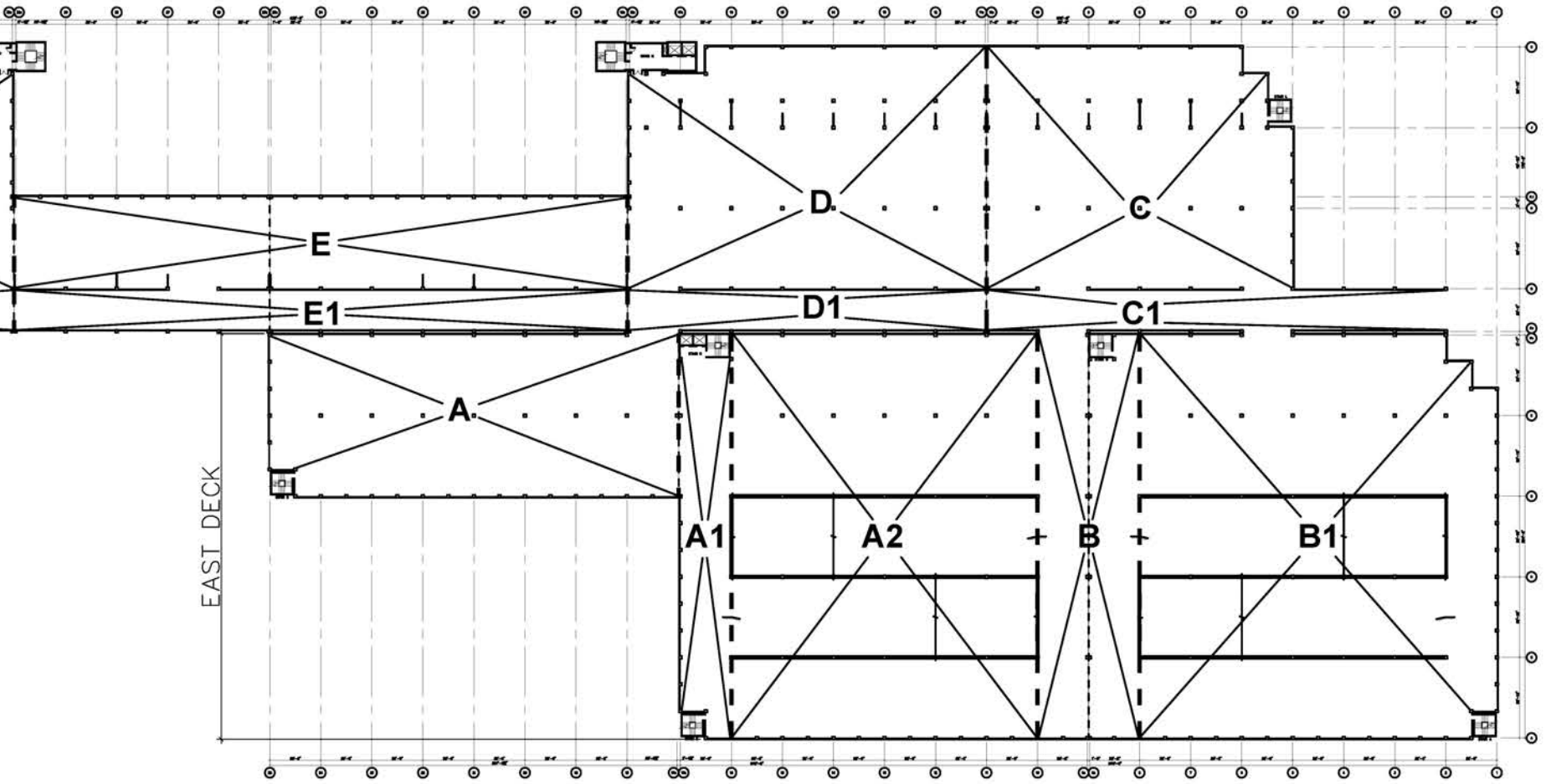


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2007 PHASE
 LOWER LEVEL WORK ON EAST AND WEST DECKS

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Phase 1 B - East Deck Roof Top

- Overlay and Deck Coating
- Joint/Connector Repairs (Expansion, Flange, etc.)
- Transfer Beams at Select Locations
- New -"Reconfigured" Drain Basins
- Slab System – Partial and Full Depth

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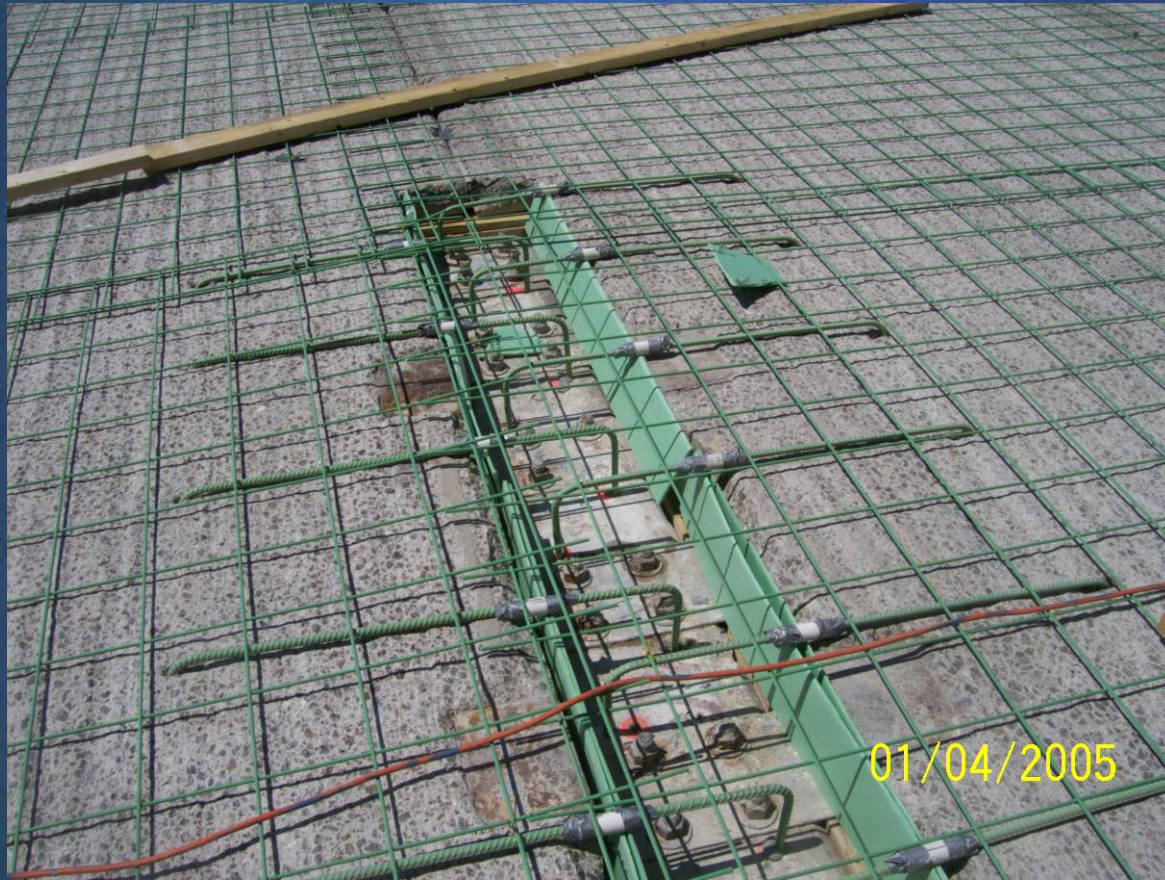


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Overlay Application



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New “Supplemental” Top Reinforcing



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Overlay Placement



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Vehicular Deck Coating Installation



Base Coat Application

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Vehicular deck coating Placement



Back Rolling Top Coat

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Top Coat Application

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Traction Coat Application

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Top Coat Application

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Finished System

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Level 3 Terrace North Finished

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Deck-coating Finished at Level 3 Terrace South

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Restoration Systems - Predictable Service Life

- Protective Surfaces
 - Latex Modified Concrete Overlay
 - Vehicular Deck Coating
- Other Features
 - Joint Seals
 - Drains
 - Transfer Devices

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Future Maintenance Considerations

- Definitions
 - Maintenance actions prevent or delay (the onset of) deterioration, damage, distress or dis-function.
 - Repair procedures; correct, remedy/renew existing damage to a structure member/feature or operational system.
- The **First** is proactive, and the **Second** is reactive!

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- Ongoing parking deck restoration project demand for the past 25 years, supports the view that Parking Deck Maintenance is:
 - The **First** thing that **gets cut when budgets are tight.**
 - The **First** thing **that gets neglected when staffing allocations are stretched.**
 - The Last thing that **gets prioritized when operations and planning meetings are held.**
 - Parking Decks Deserve **better, more frequent, and clearly targeted maintenance operations.**

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Questions and Answers

