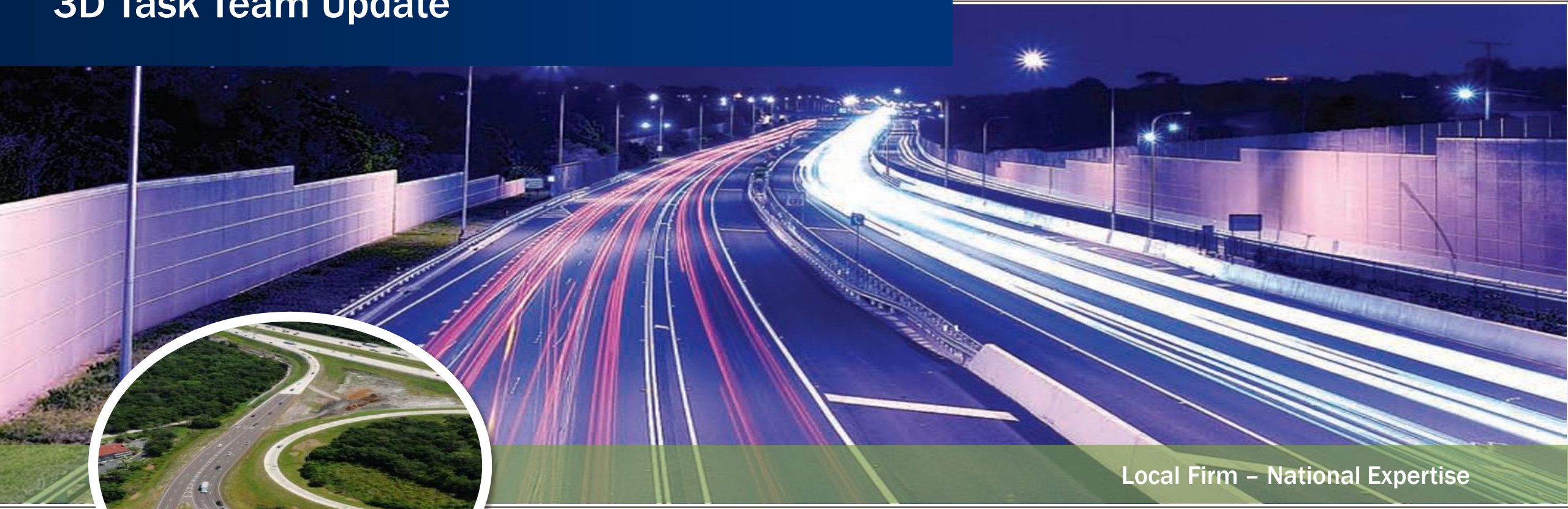
TETRA TECH

3D Task Team Update



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3D Task Team Activities

- 3D Task Team
  - FDOT Staff
  - Surveyors
  - Contractors
  - Design Consultants (project managers, engineers, designers, CADD techs)
  - CEI Consultants
- Evaluated hardware requirements for CADD systems
- Reviewed draft documents and provided comments to CO in March
  - Scope of services
  - Staff-hour guidelines
  - Staff-hour worksheets

Staff-hour Guidelines

- Task 36.1 – 3D Design Model (30%)
  - Includes existing features (pavement, sidewalk, curb and gutter, drainage, and proposed alignment/corridor, up to two tie-down conditions such as cut/fill slope, or wall. Each road alignment to be modeled is considered a "corridor" and should be categorized independently.
  - Does not include proposed utility modeling or areas of detail modeling such as crossovers, intersection grading, driveways, roundabouts, or side road connections
  - Low Range: Any corridor with uniform typical section having up to two edge conditions
    - 8 to 12 hours per mile of alignment/corridor
  - Middle Range: Any corridor having up to two typical sections with up to two edge conditions each, specialized cross slope conditions, super transitions or other complex profile conditions
    - 10 to 20 hours per mile
  - Upper Range: Any corridor requiring more than two typical sections with multiple edge conditions or any corridor which targets or merges with adjacent corridors including multi-level design
    - 18 to 35 hours per mile

Staff-hour Guidelines

- Task 36.2 – 3D Design Model (60%)
  - Modification of 30% model to include the addition of proposed drainage, utilities, ponds, floodplain compensation sites, retaining walls, barrier walls, guardrail terminals, cross-overs, gore areas, side street connections, roundabouts, driveways and curb ramps.
  - Range 4 to 35 hours per mile plus individual design elements
    - Pond / Floodplain Comp. sites : 1 - 4 hours each
    - Roundabouts (single-lane): 8 - 16 hours each
    - Roundabouts (multi-lane): 12 - 30 hours each
    - Driveways: 1 - 4 hours each
    - Curb ramps: 1 - 3 hours each
    - Intersection grading / Side road connections: 3 - 8 hours each
    - Closed drainage network: 1 - 4 hours per node (manhole or inlet)
    - Bridge Abutment: 1- 4 hours per bridge
    - Bridge/tunnel modeling: 1 - 4 hours each bridge (includes superstructure and substructure)
    - Overhead sign post/structures with foundation: 0.5 - 3 hours per sign structure
    - Proposed utilities: 2 - 12 hours per mile

Staff-hour Guidelines

- Task 36.3 – 3D Design Model (90%)
  - 10 to 20 hours per mile of alignment/corridor
- Task 36.4 – 3D Design Model (100%)
  - 8 to 16 hours per mile of alignment/corridor
- Task 36.5 – Cross Section Design Files
  - Used instead of Task 4.9
  - Alignment/Corridor: 20 to 80 hours LS
  - Pond/Floodplain Compensation: 8 to 18 hours per site
  - .GEN file production: 8 to 16 hours
- Task 36.6 – Quality Assurance/Quality Control (5%)
- Task 36.7 – Supervision (5%)

Other Activities To Be Addressed

- Survey effort
  - Technology (conventional, photogrammetry, terrestrial mobile LiDAR)
  - Segmentation
  - Features to be surveyed (drainage structures, utilities, pavement, grading)
  - Density
- Post design services
  - Plans revisions
  - As-built plans
- Specifications
- CEI
- Quality Control/Quality Assurance
- Signing and sealing

Current Status

- Draft documents being finalized
  - Scope of services
  - Staff-hour guidelines
  - Staff-hour worksheets
- Transition plan being developed
- Pilot projects being monitored for effects on cost and schedule
- Districts may require the use of 3D on any project
- Implementation date – ~~July 2017~~ July 2018

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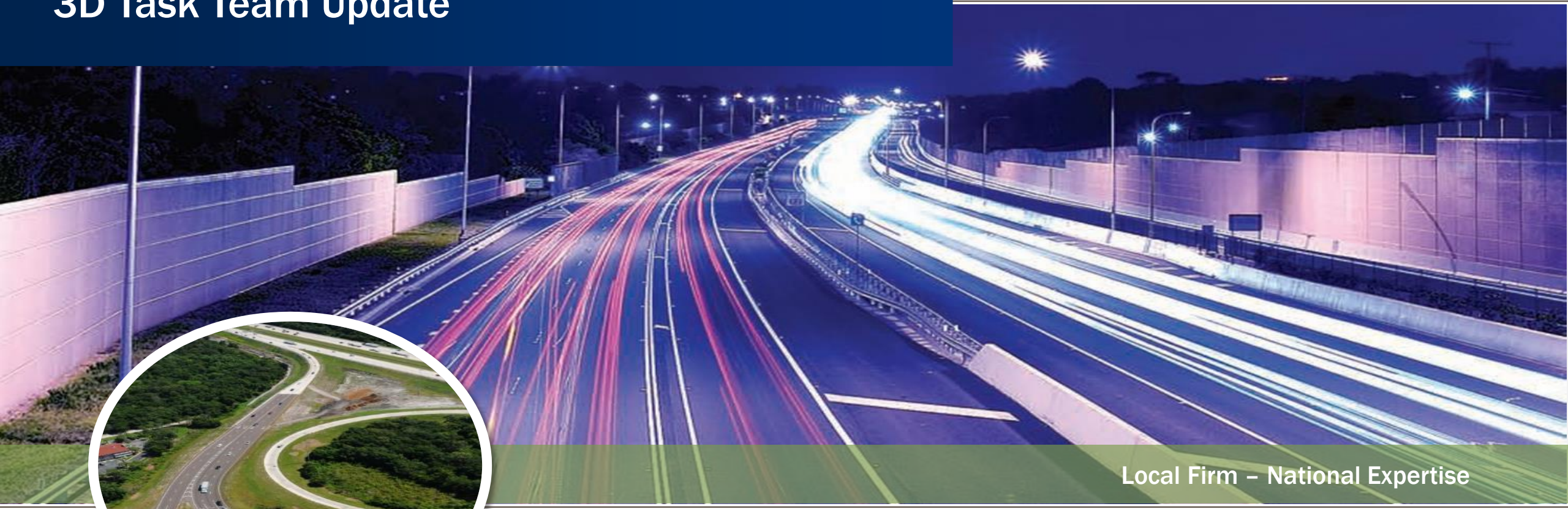

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