Implementing Eco-Logical

Stakeholder Meeting

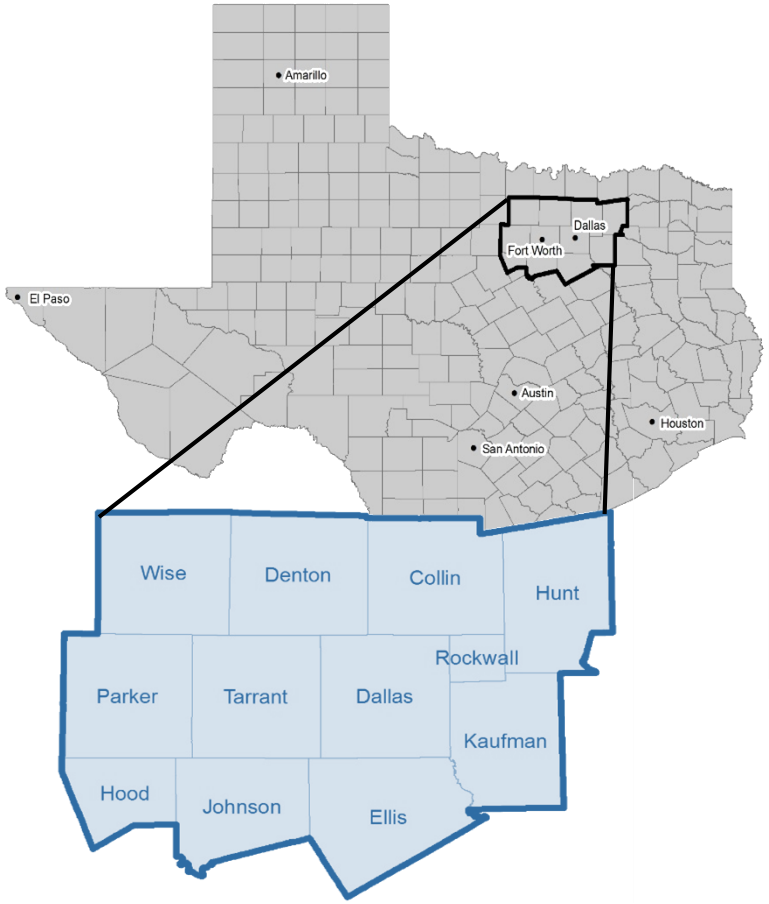
North Central Texas Council of Governments

June 4, 2014

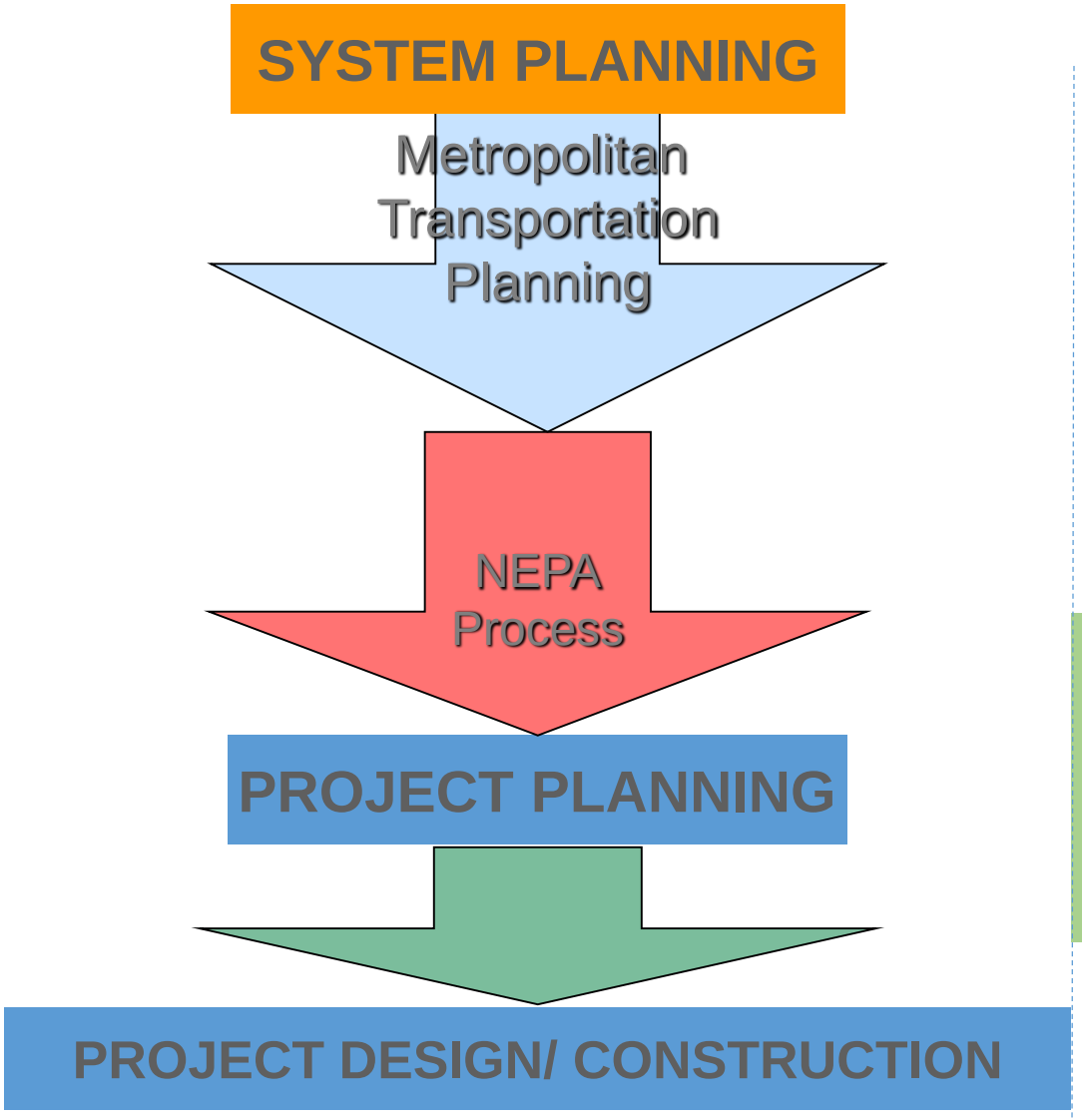
Regional Transportation Planning Framework

Dallas-Fort Worth Metropolitan Planning Organization (MPO)

- Conducts long-range transportation planning
- Works with transportation partners and resource agencies to streamline delivery of regional transportation projects
- Serves as staff to Regional Transportation Council that allocates transportation funds

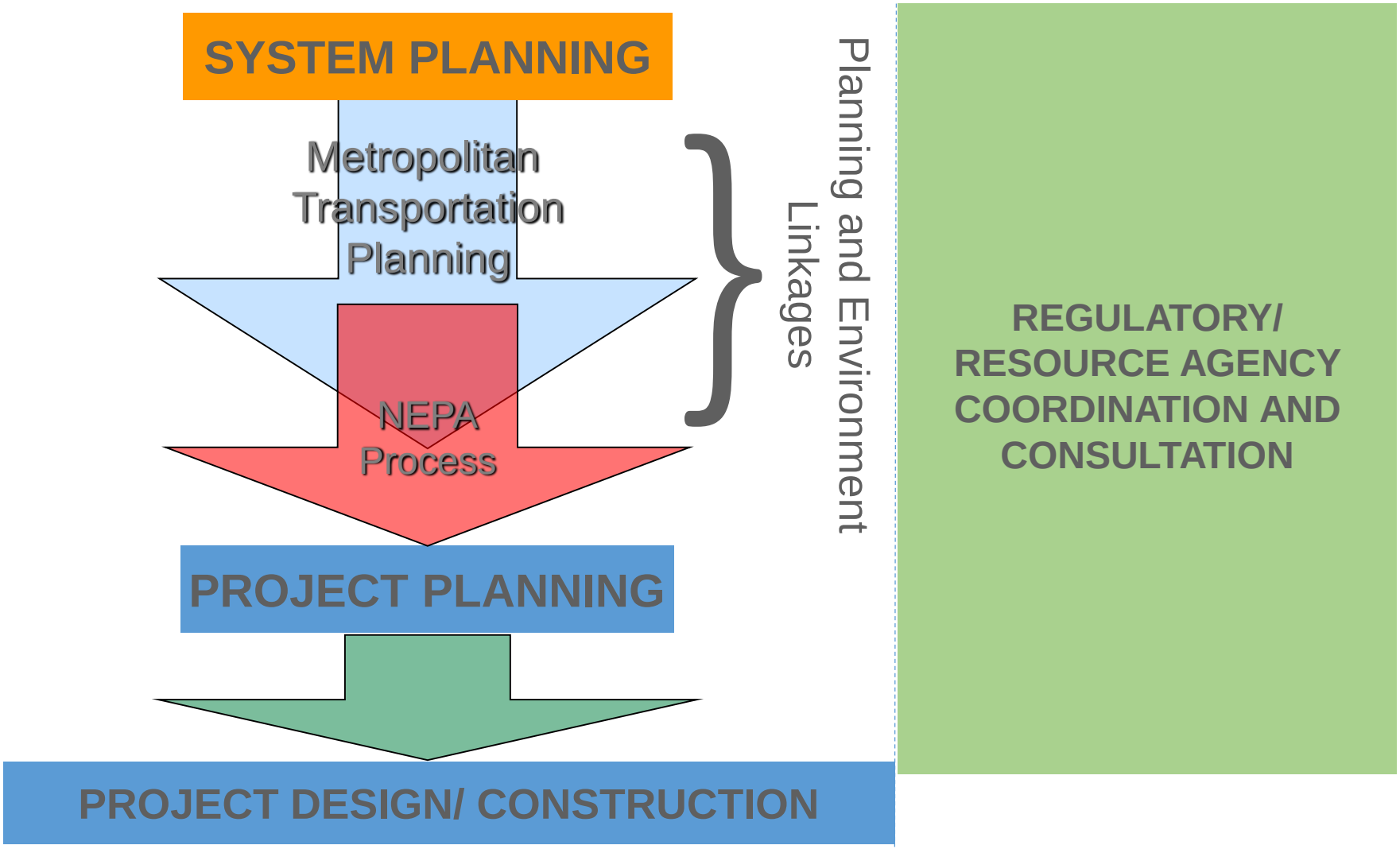


Traditional Transportation Project Development Process



REGULATORY/RESOURCE AGENCY REVIEW

Enhanced Transportation Project Development Process



Regional Transportation & Conservation Integration Efforts

MPO Efforts

Planning and Environmental Linkages (PEL)
Transportation Resource Agency Consultation
and Environmental Streamlining (TRACES)

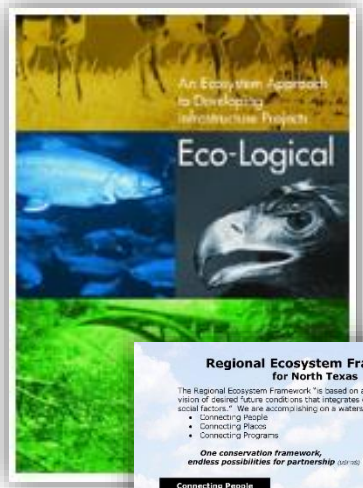
2008 FHWA Eco-Logical Grant

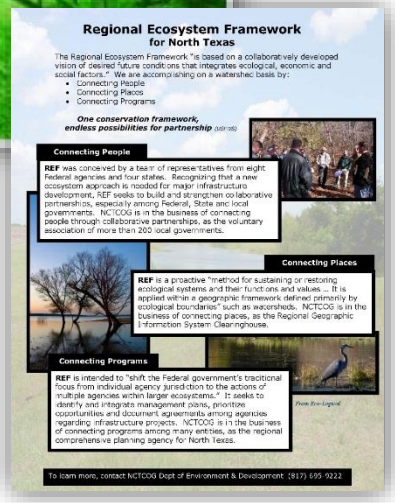
Regional Ecosystem Framework (REF)

REF Documented in Mobility 2035

2013/2014 Implementing REF Project (Pilot Study)

Integrate into Mobility 2040





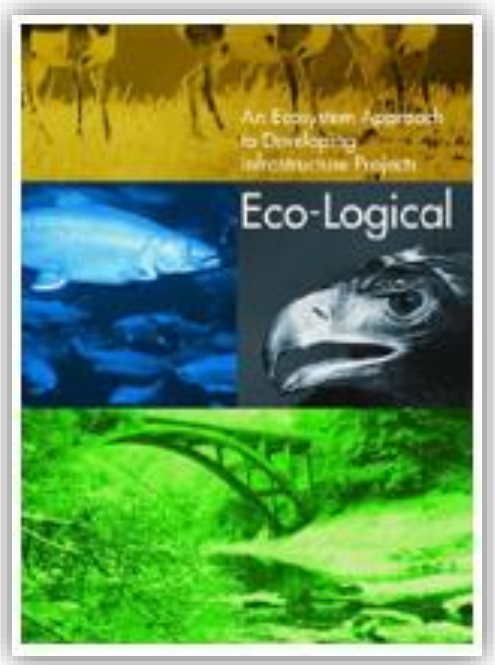
Coordination and Consultation Successes

- Transportation Resource Agency Consultation and Environmental Streamlining (TRACES)
  - Data Sharing
  - Working Groups
  - Transportation Policy Development
- Innovative Partnerships
  - Agreement with USACE to expedite permits for regionally significant transportation projects
  - Program has resulted in cost savings and preservation of the aquatic environment

FHWA Eco-Logical Program

An Ecosystem Approach to Developing Infrastructure Projects

- Vision for infrastructure development process that endorses ecosystem-based mitigation
- Coordinate resource and regulatory agency information earlier in the transportation planning process
- Focus on building partnerships
- Proactive approach to link resource agency and transportation goals



Introducing Eco-Logical Approach

FHWA Eco-Logical Grant

- Conducted by NCTCOG from 2008-2011
- Completed in coordination with E&D Department

Purpose

Develop Regional Ecosystem Framework (REF) to help identify, assess, and avoid environmental impacts of proposed infrastructure projects and to enhance multi-agency understanding of critical resource protection areas

Product

REF documented in *Mobility 2035: The Metropolitan Transportation Plan for North Central Texas*

2035 mobility

Environmental Considerations

Exhibit C.14: Mobility 2035 – 2013 Update Transit Recommendations Environmental Scoring Results Table

Mobility 2035 – 2013 Update Transit Scoring Results Table (Preliminary Screening Tool for Potential Impact Identification)				Facilities*					Water*				Ecology*												Other*				Hydrologic Unit Code Related Indicators**		Other Water Related Indicators**				Land Cover**			
FS ID	Corridor	From	To	Within 100 meters of a hospital?	Within 1000 meters of a hospital?	Within 100 meters of a TRE[1] facility?	Within 1000 meters of a TRE[1] facility?	Within 100 meters of a regulated[2] facility?	Within 1000 meters of a regulated[2] facility?	Within 100 year flood plain?	Within 500 year flood plain?	Within an NO_2[3] wetland?	Within 1000 meters of NO_2[3] wetland?	Within a federal/state park or wildlife area?	Within 1000 meters of a federal/state park or wildlife area?	Within a critical habitat[4] area?	Within 1000 meters of a critical habitat[4] area?	Within 100 meters of a REAP Composite[5] area that is within the top 10% highest scores?	Within 1000 meters of a REAP Composite[5] area that is within the top 10% highest scores?	Within 100 meters of a REAP Sustainability[6] area that is within the top 10% highest scores?	Within 1000 meters of a REAP Sustainability[6] area that is within the top 10% highest scores?	Within 100 meters of a REAP Rarity[7] area that is within the top 10% highest scores?	Within 1000 meters of a REAP Rarity[7] area that is within the top 10% highest scores?	Within 100 meters of a place on the NRHP?	Within 1000 meters of a place on NRHP?	Within 100 meters of a school?	Within 1000 meters of a school?	Within an air quality nonattainment area?	3 Short Exceedance[8]	Surface Water Use[9]	United Watershed Assessment[9]	Distance to Water (feet)[9]	Surface Water Quantity (miles/sq. mile)[9]	% 100 Year Floodplain[10]	% 500 Year Floodplain[10]	Groundwater Probability[9]	Soil Permeability[9]	% Wildlife[9]	% Agriculture[10]	% Wetlands[10]	Land Use Ranking[11]
1	Blue Line Rowlett Ext	Downtown Garland	Rowlett	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	3	3	5	5	3	1	1	1	1	1	1	3
2	Blue Line UNT Ext	Ledbetter	UNT South Campus	N	Y	N	N	N	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	N	Y	Y	3	4	5	5	3	1	1	2	2	4	1	4
3	Cleburne Line	Fort Worth ITC	City of Cleburne	N	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	Y	N	Y	N	Y	Y	3	3	5	5	1	1	1	1	2	3	1	3
4	Cotton Belt	DFWIA Terminal AB	Shiloh	Included in Exhibit C.14a due to availability of different data***																																		
5	Downtown Dallas Second Alignment	Victory Station	Deep Ellum	N	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	Y	Y	3	4	5	5	1	1	2	3	2	1	1	2
6	A-Train	City of Denton	Trinity Mills	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	4	2	5	5	3	3	3	2	2	3	1	3
6	A-Train	Trinity Mills	Belt Line (Carrollton)	Included in Exhibit C.14a due to availability of different data***																																		
7	Frisco Line	South Irving Transit Center	Frisco	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	N	Y	Y	4	2	5	5	2	1	2	2	1	2	1	3
8	Mansfield Line	Midlothian	Fort Worth ITC	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	3	3	5	5	1	1	1	1	2	3	1	4
9	McKinney Line	Parker Road (Plano)	McKinney North	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	3	3	5	5	2	1	1	1	2	3	1	3
10	Midlothian Line	Red Bird Lane	Midlothian Central	N	N	N	Y	Y	Y	Y	Y	N	N	N	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	3	4	5	5	1	1	1	1	2	4	1	4

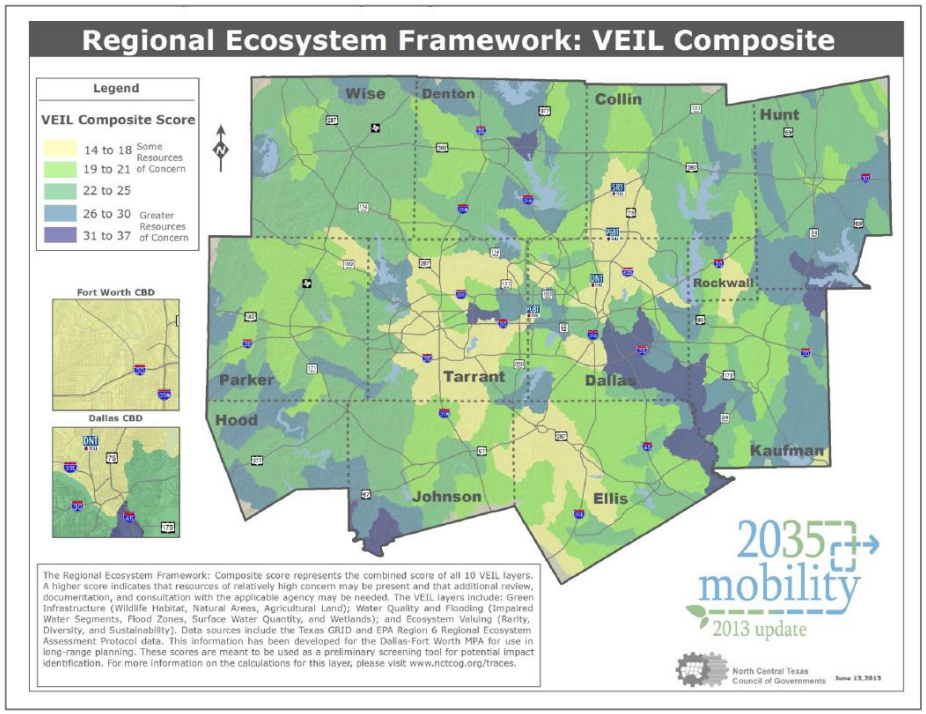
*Data source and Y/N values provided by EPA Regional NEPAssist

**Data source and scores provided by EPA Region 6 Geographic Information System Screening Tool (GISST). The GISST results give users several options to calculate various physical, environmental, and demographic data for a user-defined area. It creates scores for each dataset, giving it the power to be used as a comparative analysis tool. Medium-high and high scores are highlighted in yellow in the results table. Medium, medium-low, and low scores are highlighted in blue in the results table. The scores indicated in this table reflect a buffer area of 1 miles around each corridor.

***EPA NEPAssist tool was updated in 2011 and now does not include the same level of information as previously captured in this analysis. Therefore, a new table (Exhibit C.14a) with the revised projects has been developed and included that reflects the current available data in EPA NEPAssist.

Indicates medium-high and high scores (4 and 5) resulting from the EPA GISST analysis tool.

Indicates low, medium-low, and medium scores (1, 2, and 3) resulting from the EPA GISST analysis tool.

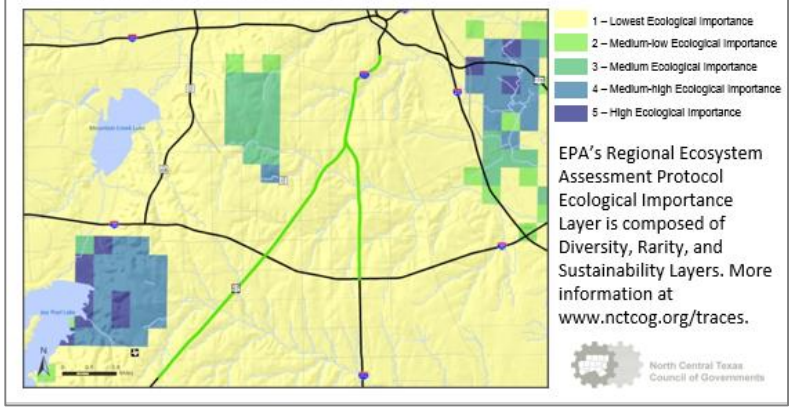


NCTCOG Regional Ecosystem Framework Score* (Range: 14 - 37)

SUBWATERSHED NAME	REF COMPOSITE SCORE
Headwaters Fivemile Creek	17
Headwaters Tenmile Creek	19
Turtle Creek-Trinity River	22

*Lower REF score indicates less resource vulnerability, higher score indicates more resource vulnerability.

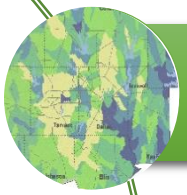
Ecological Importance in Corridor



Implementing Eco-Logical Approach

Received funds in 2013 from FHWA to Apply Eco-Logical Approach in real-world situation

Project Emphasis Areas:



Update REF and Identify Mitigation Focus Areas

Apply REF to Corridor Feasibility Study

Implement a Regional Shared Value Mitigation Program

Regional Significance

- Save Money and Time
- Preserve and Enhance Natural Resources

- Coordinate Resource Agency Goals with Transportation Goals

Regional Ecosystem Framework Development

REF Background

- Planning tool developed to **identify** natural resources by watershed
- **Integrates** regional conservation data and infrastructure plans
- Developed with **feedback** from resource agency partners
- Goal is to **avoid** the negative impacts of infrastructure projects and **enhance** the natural environment

Presence of Vital Ecosystems

REF is comprised of 10 Vital Ecosystem Information Layers (VEIL)

VEIL Layers

Green Infrastructure*	Water Considerations*	Ecosystem Value**
• Wildlife habitat • Natural areas • Agricultural land	• Impaired water segments • Flood zones • Surface water quantity • Wetlands	• Rarity • Diversity • Sustainability

*Data Source: EPA Region 6, Texas GRID data

**Regional Ecosystem Assessment Protocol is based on Ecoregion Analysis

VEIL Layer Scoring Example

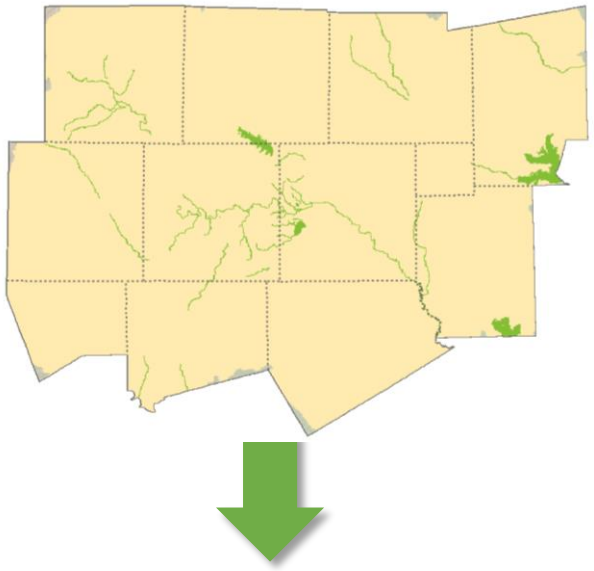
Impaired Water Segments

- Region is divided into 1/4km² grid
- Grid cells are assigned a score based on presence of an impaired water segment:

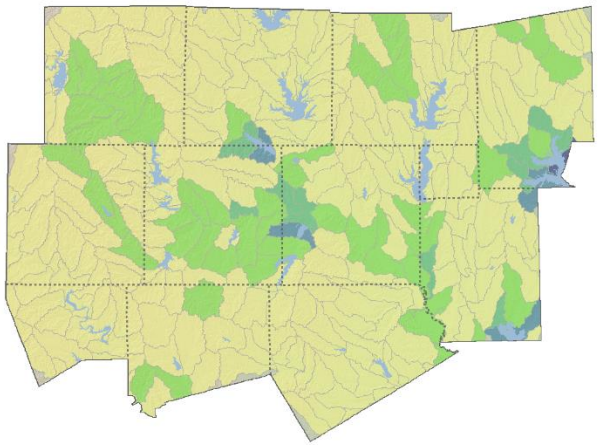
Grid Cell Attributes	Score
No Impaired Water Segment Present	1
Impaired Water Segment Present	5

- Grid cell scores are aggregated to subwatershed level and an average score from 1-5 is assigned to each subwatershed

Grid-Level Scores

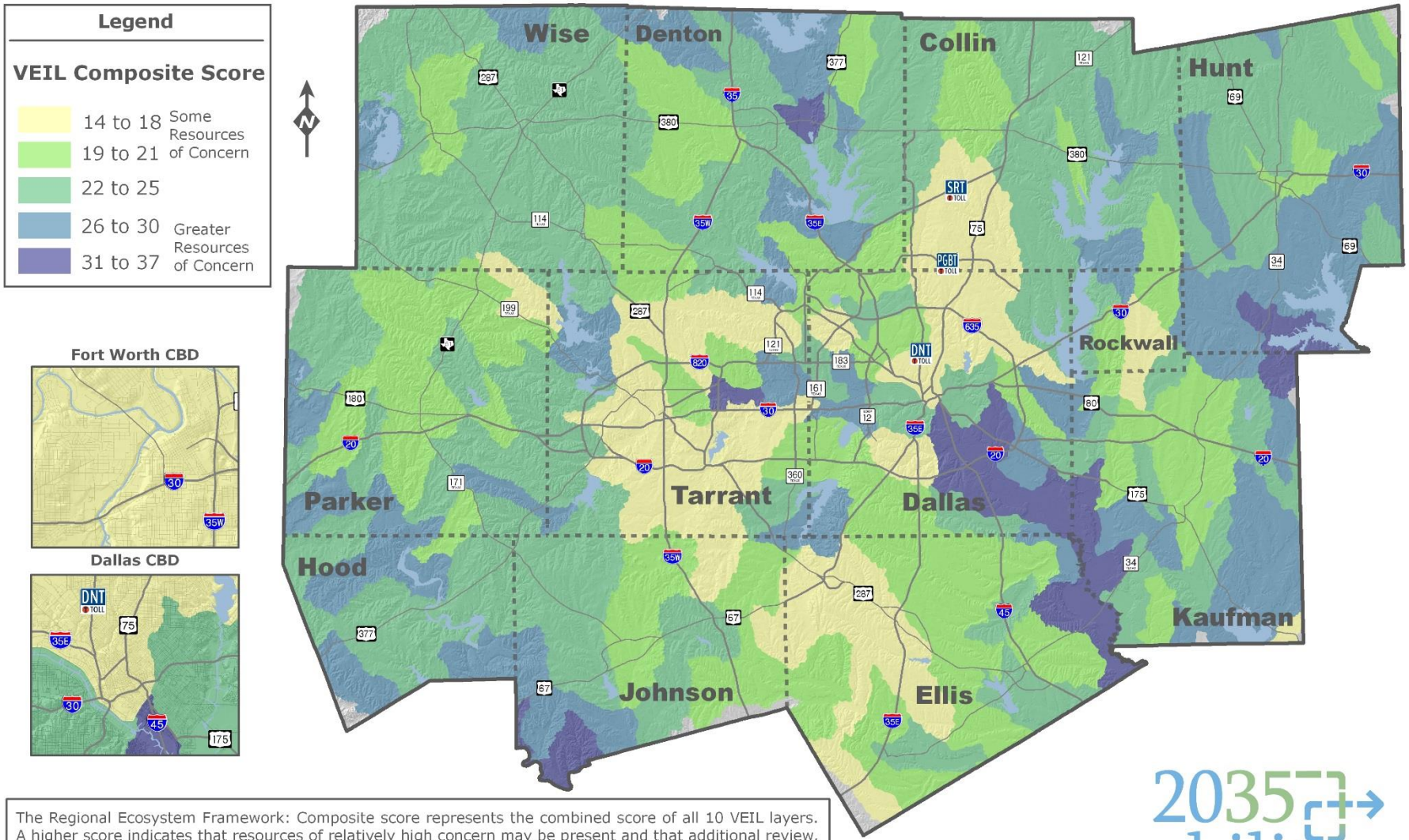


Subwatershed Scores



Data Source: Clean Water Act 303(d) Segments State Priority Data

Regional Ecosystem Framework: VEIL Composite



The Regional Ecosystem Framework: Composite score represents the combined score of all 10 VEIL layers. A higher score indicates that resources of relatively high concern may be present and that additional review, documentation, and consultation with the applicable agency may be needed. The VEIL layers include: Green Infrastructure (Wildlife Habitat, Natural Areas, Agricultural Land); Water Quality and Flooding (Impaired Water Segments, Flood Zones, Surface Water Quantity, and Wetlands); and Ecosystem Valuing (Rarity, Diversity, and Sustainability). Data sources include the Texas GRID and EPA Region 6 Regional Ecosystem Assessment Protocol data. This information has been developed for the Dallas-Fort Worth MPA for use in long-range planning. These scores are meant to be used as a preliminary screening tool for potential impact identification. For more information on the calculations for this layer, please visit www.nctcog.org/traces.

2035 mobility

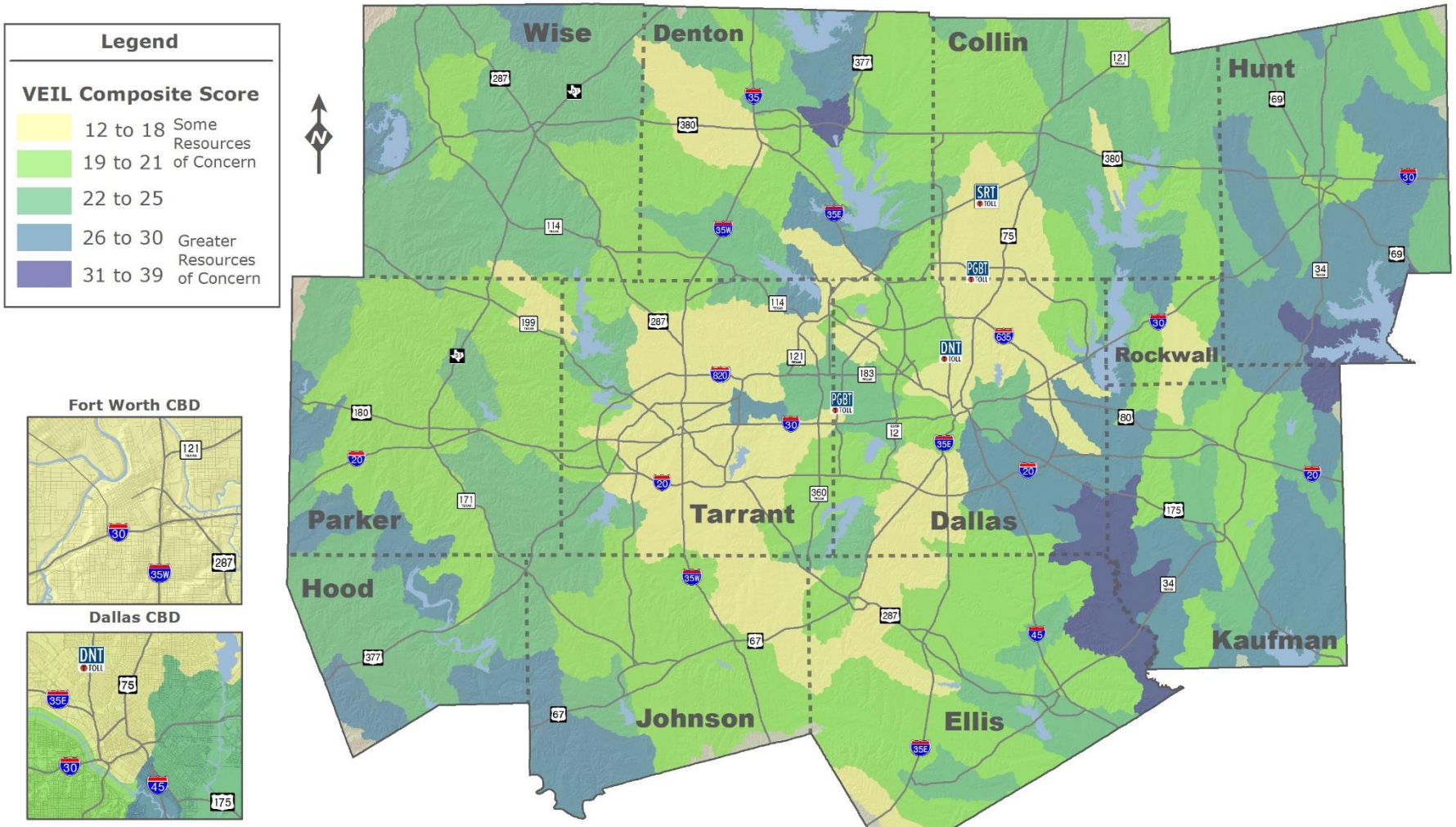
North Central Texas Council of Governments

March 10, 2011

Implementing Eco-Logical: REF Update Task

- Re-Engage Resource Agencies and Update REF
  - Stakeholder Meetings
  - Incorporate updated data to REF
- Identify Priority Subwatersheds
- Identify Candidate Mitigation and Enhancement Areas
- Identify Suitable Sites for Potential Mitigation Banks

Regional Ecosystem Framework: VEIL Composite



The Regional Ecosystem Framework: Composite score represents the combined score of all 10 VEIL layers. A higher score indicates that resources of relatively high concern may be present and that additional review, documentation, and consultation with the applicable agency may be needed. The VEIL layers include: Green Infrastructure (Wildlife Habitat, Natural Areas, Agricultural Land); Water Quality and Flooding (Impaired Water Segments, Flood Zones, Surface Water Quantity, and Wetlands); and Ecosystem Valuing (Rarity, Diversity, and Sustainability). Data sources include the Texas GRID and EPA Region 6 Regional Ecosystem Assessment Protocol data. This information has been developed for the Dallas-Fort Worth MPA for use in long-range planning. These scores are meant to be used as a preliminary screening tool for potential impact identification. For more information on the calculations for this layer, please visit www.nctcog.org/traces.

DRAFT

North Central Texas Council of Governments

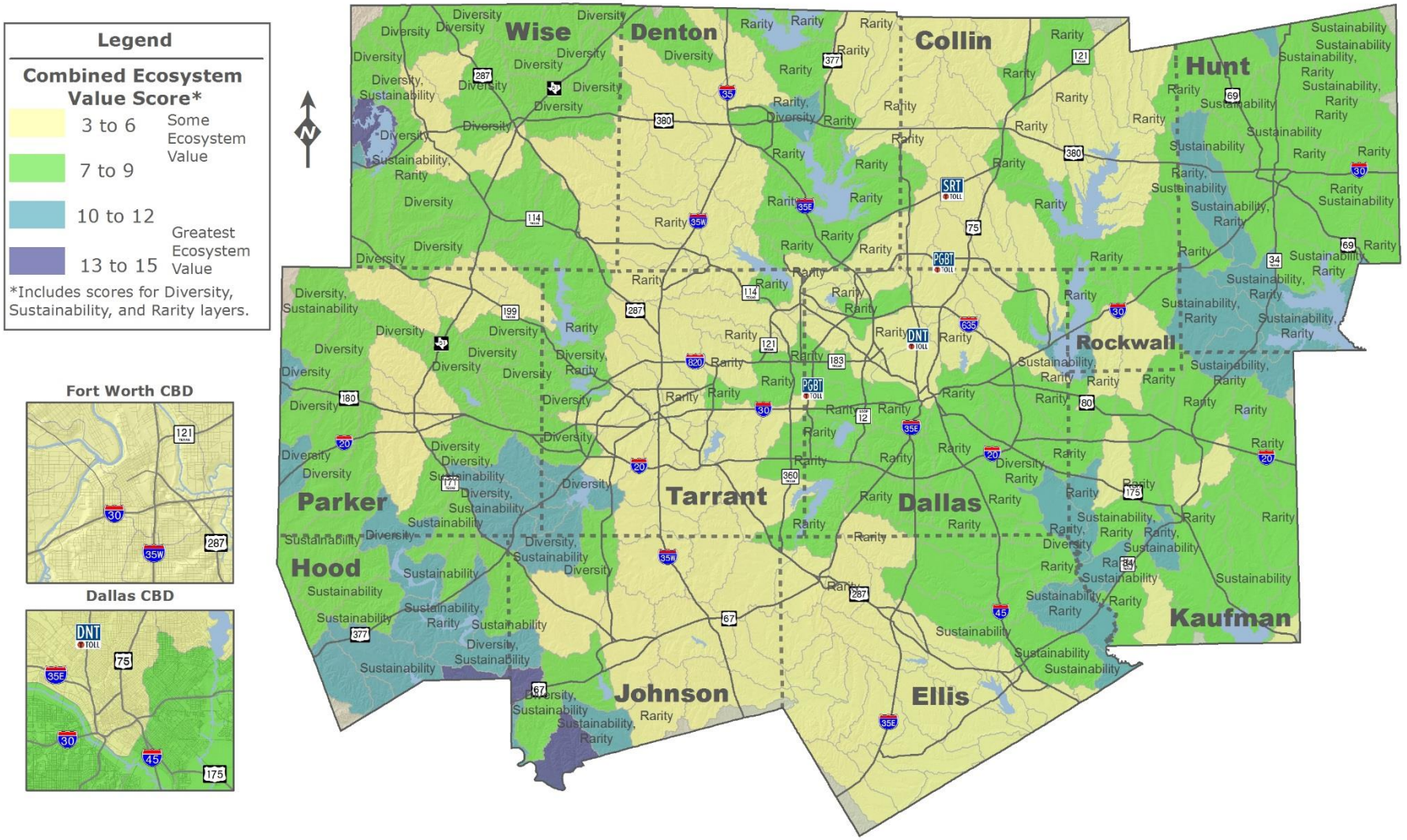
June 4, 2014

Subwatershed Mapping

REF Update: Subwatershed Ecosystem Priorities

- Exercise to determine highest need in each subwatershed in terms of ecosystem vulnerability
- Incorporate REF as underlying data and overlay additional environmental data
- Next steps are to identify vulnerable sites and potential mitigation sites

Regional Ecosystem Framework: Subwatersheds by Ecosystem Value



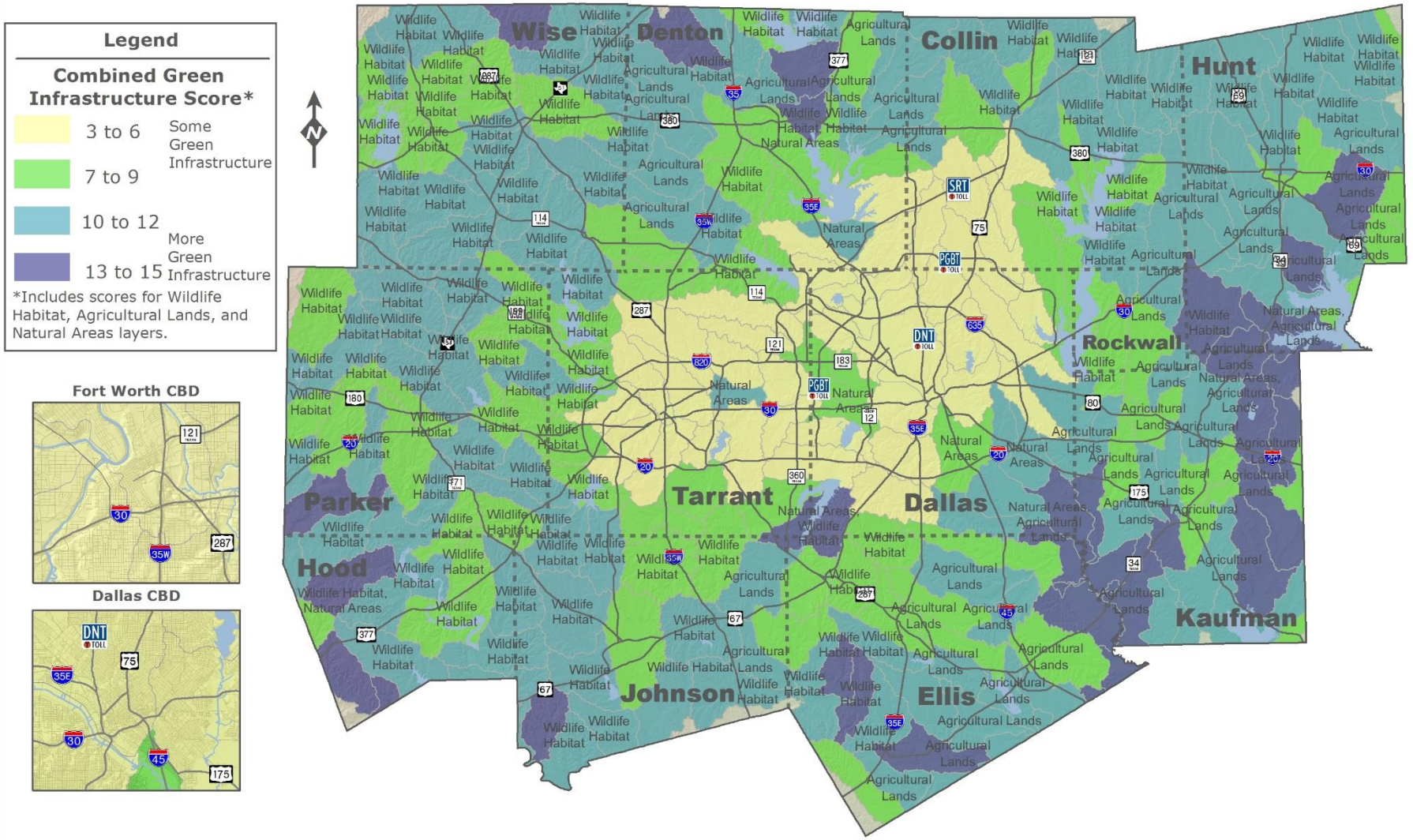
The Subwatersheds by Ecosystem Value map shows the combined scores of three Vital Ecosystem Layers (VEIL): REAP Diversity, Sustainability, and Rarity. The minimum combined score is 3 and the maximum combined score is 15. Subwatersheds are labeled if the individual VEIL layer have a score of 4 or 5, indicating a higher presence of this particular ecosystem attribute. This information has been developed for the Dallas-Fort Worth MPA for use in long-range planning. These scores are meant to be used as a preliminary screening tool for potential impact identification. For more information on the calculations for this layer, please visit www.nctcog.org/traces.

DRAFT

North Central Texas Council of Governments

June 4, 2014

Regional Ecosystem Framework: Subwatersheds by Presence of Green Infrastructure



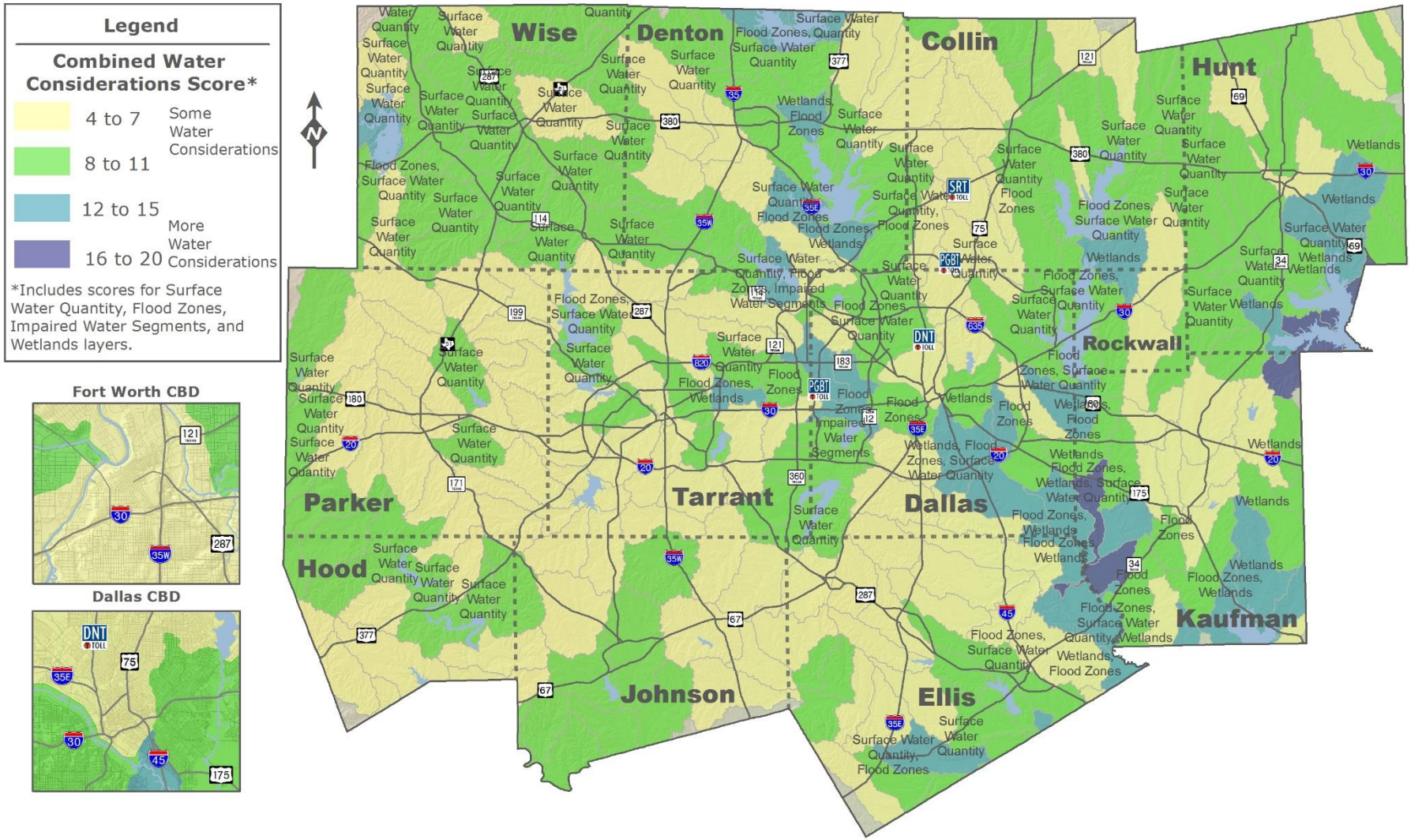
The Subwatersheds by Green Infrastructure Value map shows the combined scores of three Vital Ecosystem Information Layers (VEIL): Wildlife Habitat, Agricultural Lands, and Natural Areas. The minimum combined score is 3 and the maximum combined score is 15. Subwatersheds are labeled if the individual VEIL layer have a score of 4 or 5, indicating a higher presence of this particular ecosystem attribute. This information has been developed for the Dallas-Fort Worth MPA for use in long-range planning. These scores are meant to be used as a preliminary screening tool for potential impact identification. For more information on the calculations for this layer, please visit www.nctcog.org/traces.

DRAFT

North Central Texas Council of Governments

June 4, 2014

Regional Ecosystem Framework: Subwatersheds by Water Considerations



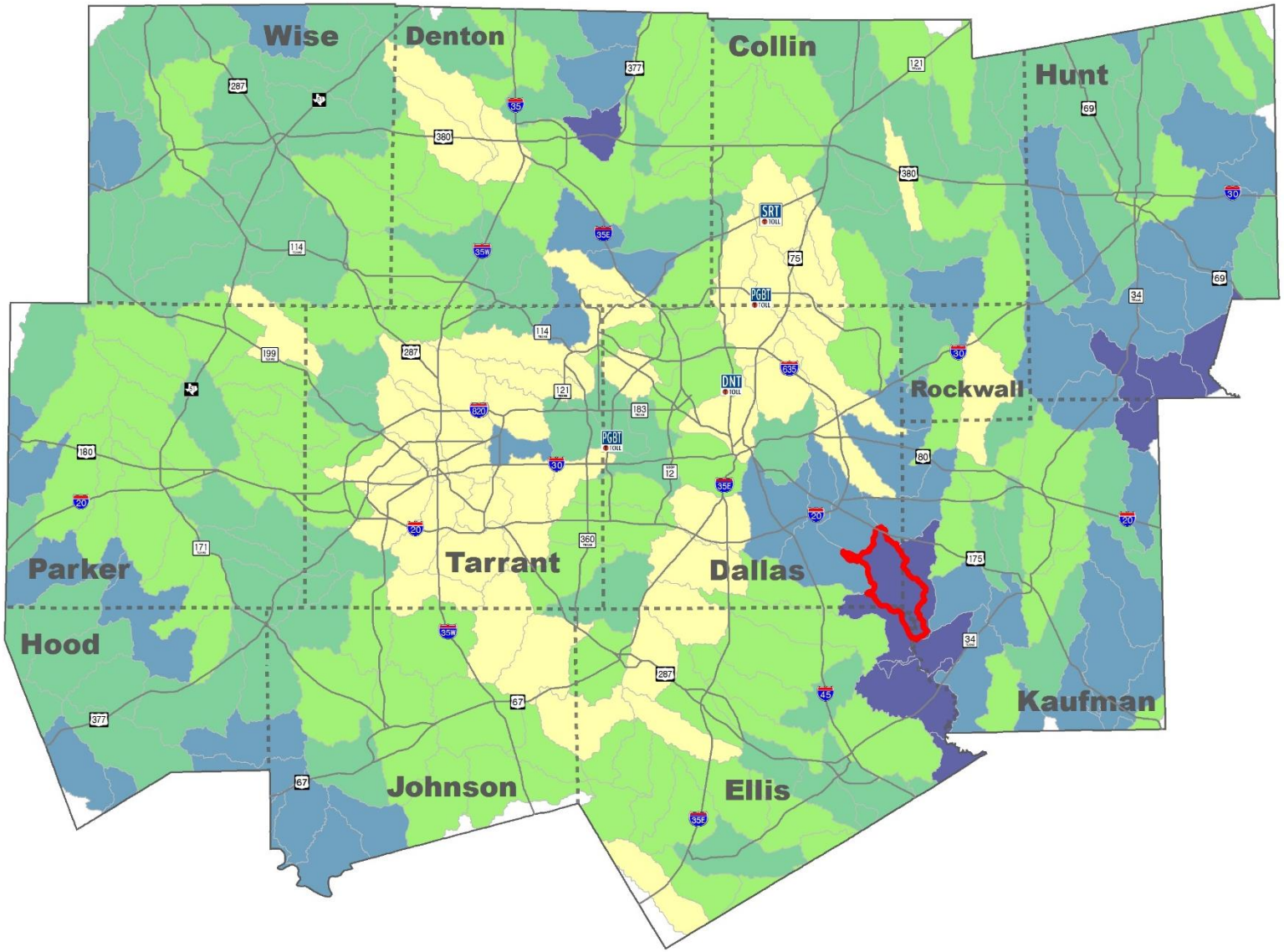
The Subwatersheds by Water Considerations map shows the combined scores of four Vital Ecosystem Information Layers (VEIL): Surface Water Quantity, Flood Zones, Impaired Water Segments, and Wetlands. The minimum combined score is 4 and the maximum combined score is 20. Subwatersheds are labeled if the individual VEIL layer has a score of 4 or 5, indicating a higher presence of this particular ecosystem attribute. This information has been developed for the Dallas-Fort Worth MPA for use in long-range planning. These scores are meant to be used as a preliminary screening tool for potential impact identification. For more information on the calculations for this layer, please visit www.nctcog.org/traces.

DRAFT

North Central Texas Council of Governments

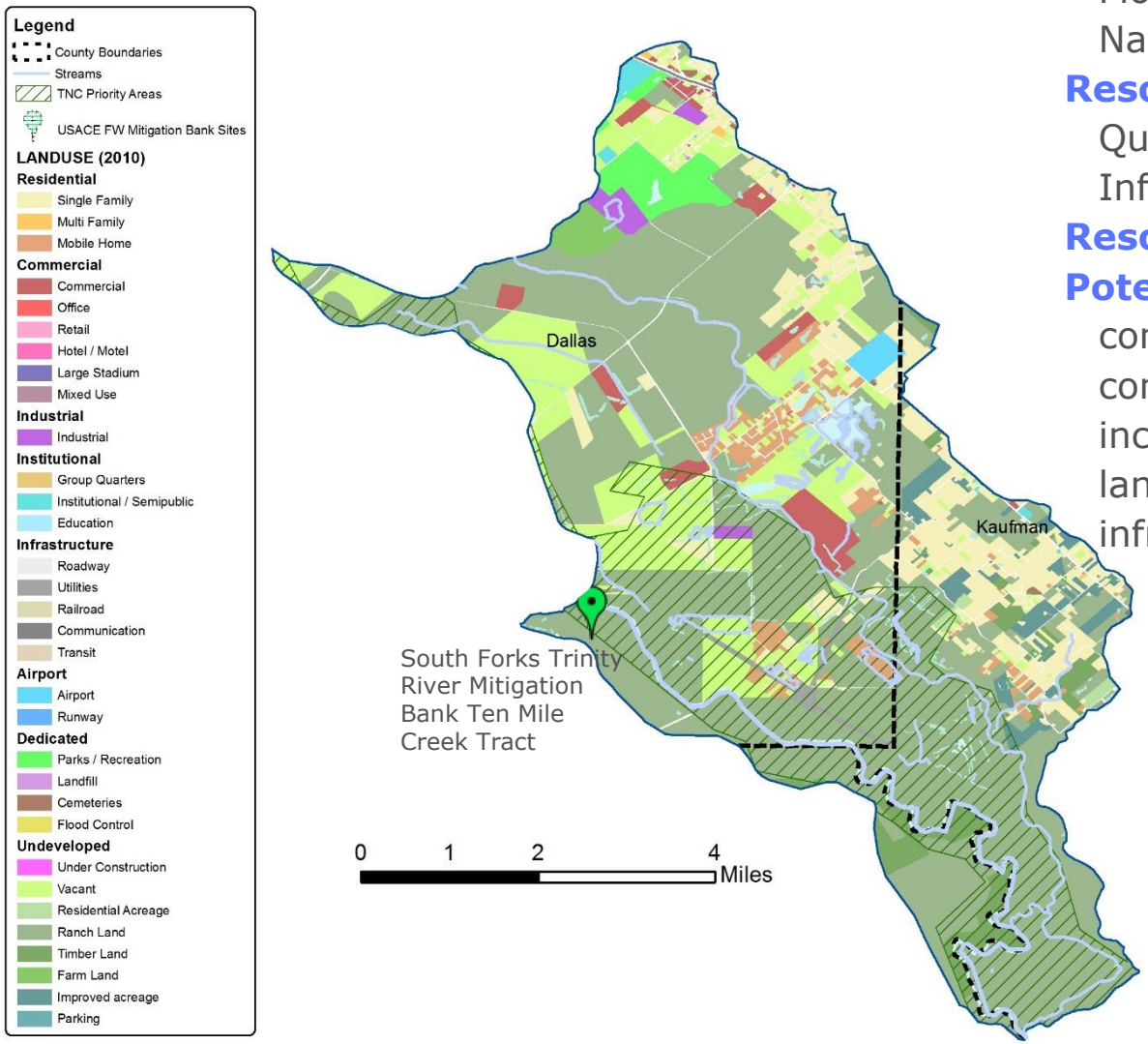
June 4, 2014

Subwatershed Example Analysis



Subwatershed Example Analysis: Additional Ecosystem Considerations

Parsons Slough-Trinity River Subwatershed



Highest Scoring VEIL Layers: Flood Zone, Wetlands, Rarity, Natural Areas

Resources of Concern: Water Quality and Flooding, Green Infrastructure, Ecosystem Value

Resource Agencies: USACE, TPWD

Potential Opportunities: Establish conservation easements; establish conservation areas or parks; incorporate buffer zones; link landscapes together through green infrastructure plans

Next Steps

Request for Data

Existing Data:

- Park/Conservation Areas
- Land Use/Land Cover
- Watersheds
- Historic Properties

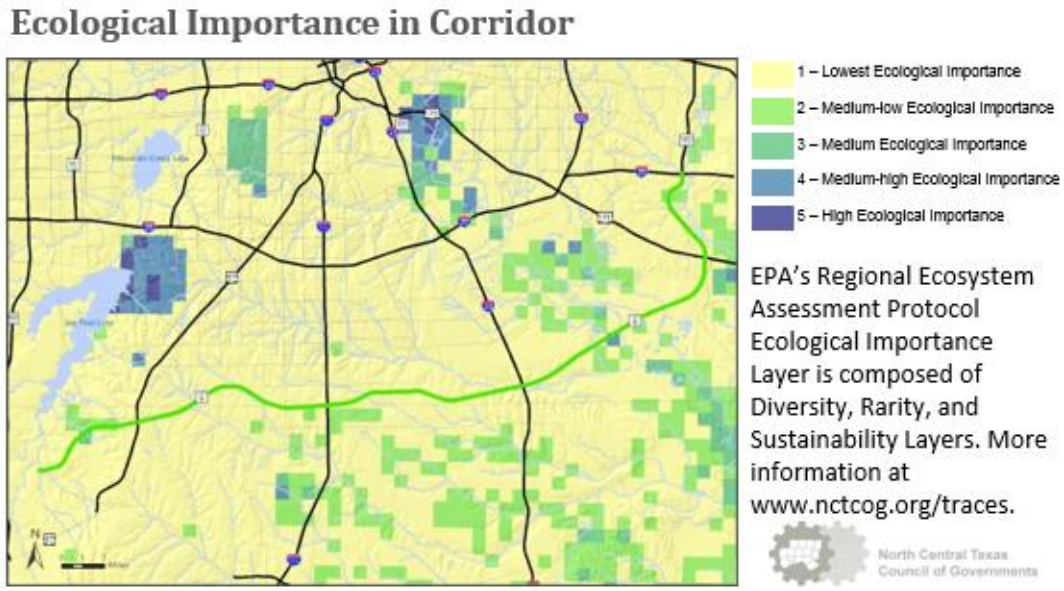
Desired Data:

- Conservation Easements
- Existing and Future Conservation Areas
- Future Parks
- Tree Cover
- Mitigation Sites
- Habitat/Species (conservation plans, assessments, etc.)

Next Steps: Apply REF to Pilot Corridor

Loop 9 Corridor

- Determine feasibility of using REF as tool to address conservation needs and potential mitigation strategies for a corridor in the pre-NEPA stages
- Create Corridor Conservation and Restoration/Enhancement Vision
- Recommend Improvements to REF
- Create regional process for using REF in corridor studies



Next Steps: Develop Regional Shared Value Mitigation Program

Effort to simultaneously expedite transportation projects and enhance resource stewardship through a programmatic mitigation approach.

- Develop Potential Mitigation Project Database
- Prioritize Shared Value Mitigation Projects
- Provide Feedback to REF
- Reserve Funds for Pilot Program

Project Schedule

Focus	Task	Timeframe
PLANNING	REF Updates and Identify Regional Focus Areas	Complete Fall 2014
PROJECT-LEVEL	Apply REF to Pilot Corridor Feasibility Study	Begin Fall 2014
MITIGATION	Implement Pilot Phase of Regional Shared Value Mitigation Program	Begin Fall 2014

Request for Input

TODAY

Comments on REF maps, process

FUTURE

- Data requests
- Participation in follow-up meetings and conversations