2011 UPDATE
JACK MILLER THOROUGHFARE NEEDS ASSESSMENT

PREPARED FOR THE CITY OF CLARKSVILLE, TENNESSEE

APRIL 5, 2011

GRESHAM
SMITH AND
PARTNERS

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Executive Summary

Since the completion of the *Jack Miller Thoroughfare Needs Assessment* in 2007, development has continued to occur in the area north of the Clarksville Central Business District. Consequently, the City of Clarksville faces the ongoing challenge of keeping up with population and employment growth and new demand for its transportation facilities. Given the significant lead time involved in planning, design and construction of transportation projects, the City must anticipate population and employment growth and act proactively in order to maintain the mobility of its residents. While it is often premature to define a single corridor in a needs assessment, it is valuable for the City to identify potential corridors in a study area and prevent new development from being constructed within the identified corridors for the planned roadway.

On June 10, 2010 a public meeting was held at the Kleeman Community Center to provide residents with background information on the East-West Corridor (Jack Miller Thoroughfare) project, as well as gather additional community input on potential corridor issues. As a result of this meeting, the City of Clarksville requested that Gresham, Smith and Partners re-examine and update the 2007 *Jack Miller Thoroughfare Needs Assessment* based on new developments in the study area and the most recent traffic forecasts developed by the Clarksville Area Metropolitan Planning Organization (MPO).

In addition to re-analyzing the five alternatives evaluated in the 2007 study (Alternatives A through E), a "City Alternative", an alternative recommended in the *2030 Smart Growth Plan,* and four alternatives identified at the public meeting were analyzed as part of this study.

The primary purpose of this study update is to document the following:

- **Is an East-West Corridor still needed?**
  - A corridor is still needed for a number of reasons, including:
    - Demand for new housing is strong;
    - Traffic volumes are still growing;
    - Widening existing roadways will add marginal levels of new capacity;
    - Widening existing east-west corridors cannot be done in isolation; and
    - Spacing of existing principal arterials is inadequate.

  Refer to Section 1 for more information.

- **What is the optimum corridor location to be preserved?**
  - The preservation of right-of-way (ROW) for planned transportation facilities provides the following benefits:
    - Promotes orderly and predictable development patterns;
    - Supports development and maintains acceptable operations of the transportation system;
    - Minimizes ROW acquisition costs when improvements are made (less homes and businesses impacted); and
    - Minimizes the adverse social and economic impacts associated with relocations.
  - This study update identifies optimum 1000-foot corridor locations but not specific roadway alignments to preserve future funding options.

- Figure ES-2 shows two basic East-West Corridor options with alternative segments in two locations.
- The optimum corridor location could be a combination of any of the segments, and will be further refined in the transportation planning process as more information is collected from the public and other stakeholders.

Refer to Section 2 for more information.

- **Identify the steps necessary for implementation.**
  - Often the only feasible way for a transportation project of this magnitude to be implemented is through the use of federal funding, which typically involves some level of local matching funds.
  - Pursuant to the National Environmental Policy Act (NEPA), recipients of federal funds are required to comply with the NEPA process, which involves the analysis of reasonable alternatives, opportunities for stakeholder and public involvement and project decisions that balance engineering and transportation needs with social, economic, and environmental factors.
  - If pursued, federal funding is made available through the Tennessee Department of Transportation (TDOT) and the MPO.
  - The City will need to comply with TDOT's project development process. The steps needed for implementation are outlined in Figure ES-1.

Refer to Section 3 for more information.

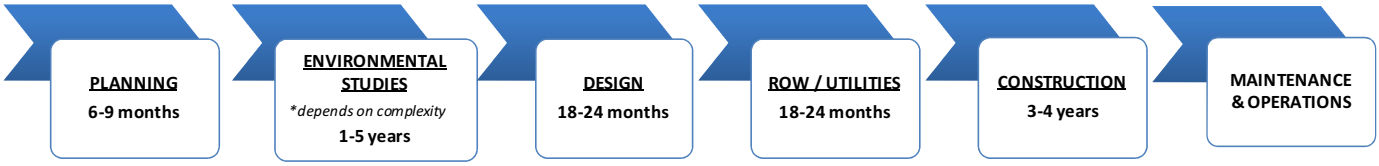

Figure ES-1 – TDOT Project Development Process and Anticipated Timeline

- **Implementation Options**
  - The proposed typical section is recommended to be either a 4-lane divided or 5-lane curb and gutter section.
  - Although the NEPA process needs to be performed for the entire corridor, the project will likely be built in phases in response to growth demands and funding availability.
  - The East-West Corridor consists of logical segments or phases that can be designed and constructed as funding allows.

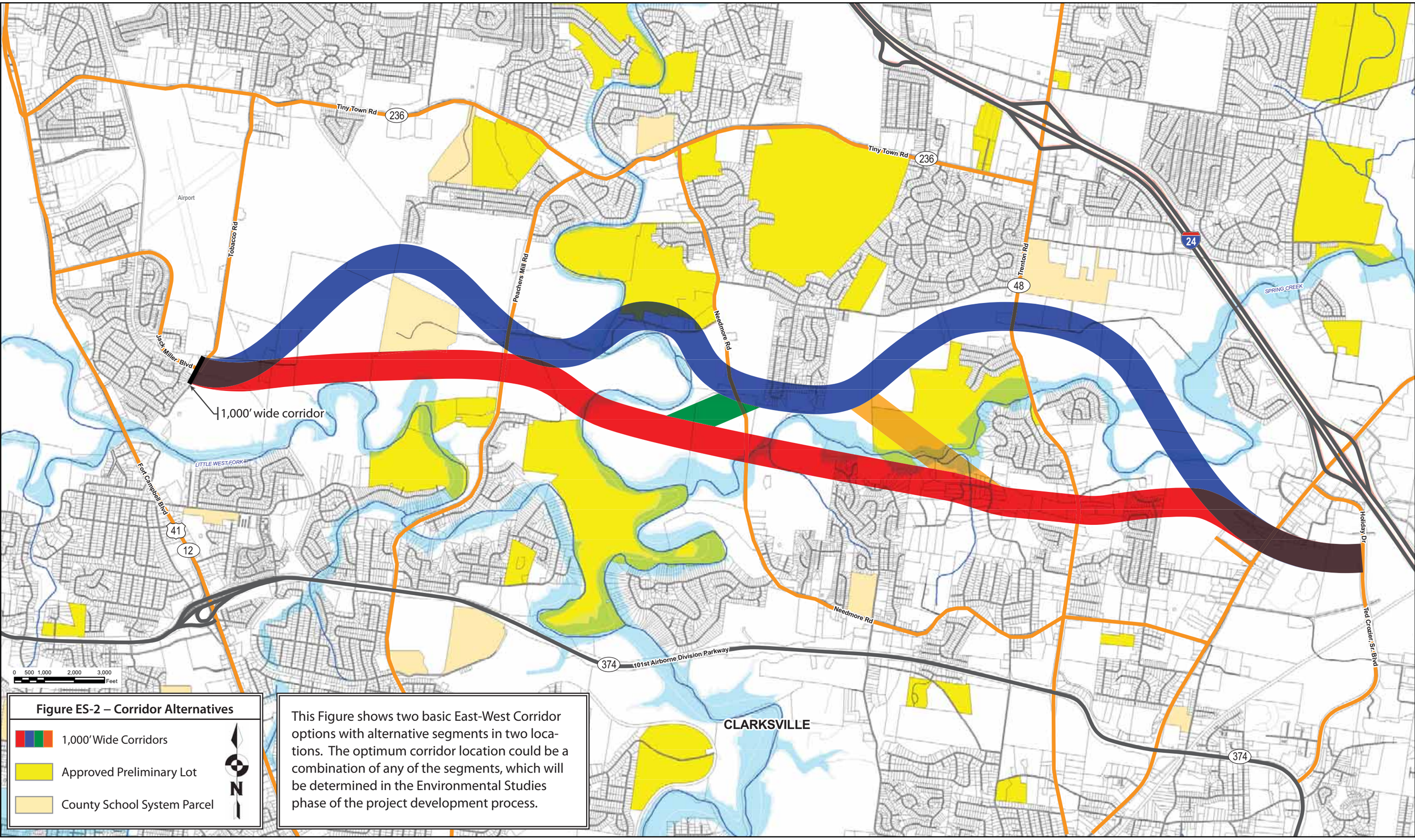

Figure ES-2 – Corridor Alternatives

- 1,000' Wide Corridors
- Approved Preliminary Lot
- County School System Parcel

This Figure shows two basic East-West Corridor options with alternative segments in two locations. The optimum corridor location could be a combination of any of the segments, which will be determined in the Environmental Studies phase of the project development process.

Section 1 – Is An East-West Corridor Still Needed?

This study provides an update to the *Jack Miller Thoroughfare Needs Assessment* completed in January 2007, which examined the preliminary need for and feasibility of constructing a new east-west roadway from the present terminus of Jack Miller Boulevard at Tobacco Road to South Hampton Road and Wilma Rudolph Boulevard.

The project area lies between two important parts of Clarksville: Fort Campbell to the west and Trenton Road, Wilma Rudolph Boulevard and I-24 to the east. Tiny Town Road and 101st Airborne Division Parkway are the only existing east-west connections between these two areas of town. As a result, all traffic traveling between these areas and destinations beyond are funneled onto Tiny Town Road, 101st Airborne Division Parkway or through downtown Clarksville and all of these roads have reached their capacity.

Figure 1 shows Alternatives A through E evaluated in the 2007 study as well as an alternative identified by the City and one presented in the *Clarksville Smart Growth 2030 Plan*.

Benefits of Corridor Preservation

The American Association of State Highway Transportation Officials (AASHTO) defines corridor preservation as "a concept utilizing the coordinated application of various measures to obtain control of or otherwise protect the right-of-way for a planned transportation facility." The City of Clarksville needs to ensure that the preservation of an East-West corridor is followed by a more detailed environmental analysis as outlined in the National Environmental Policy Act (NEPA) process. A corridor can still be preserved in the planning process without limiting the viable alignment options evaluated in the NEPA process. An overview of the NEPA process is outlined in the "Implementation Steps" section of this study.

The preservation of right-of-way (ROW) for planned transportation facilities provides the following benefits:

- Promotes orderly and predictable development patterns;
- Supports development and maintains an acceptable operations of the transportation system;
- Minimizes ROW acquisition costs when improvements are made (less homes and businesses impacted); and
- Minimizes the adverse social and economic impacts associated with relocations.

The corridor location(s) will be further refined in the transportation planning process as more information is collected from the public and other stakeholders.

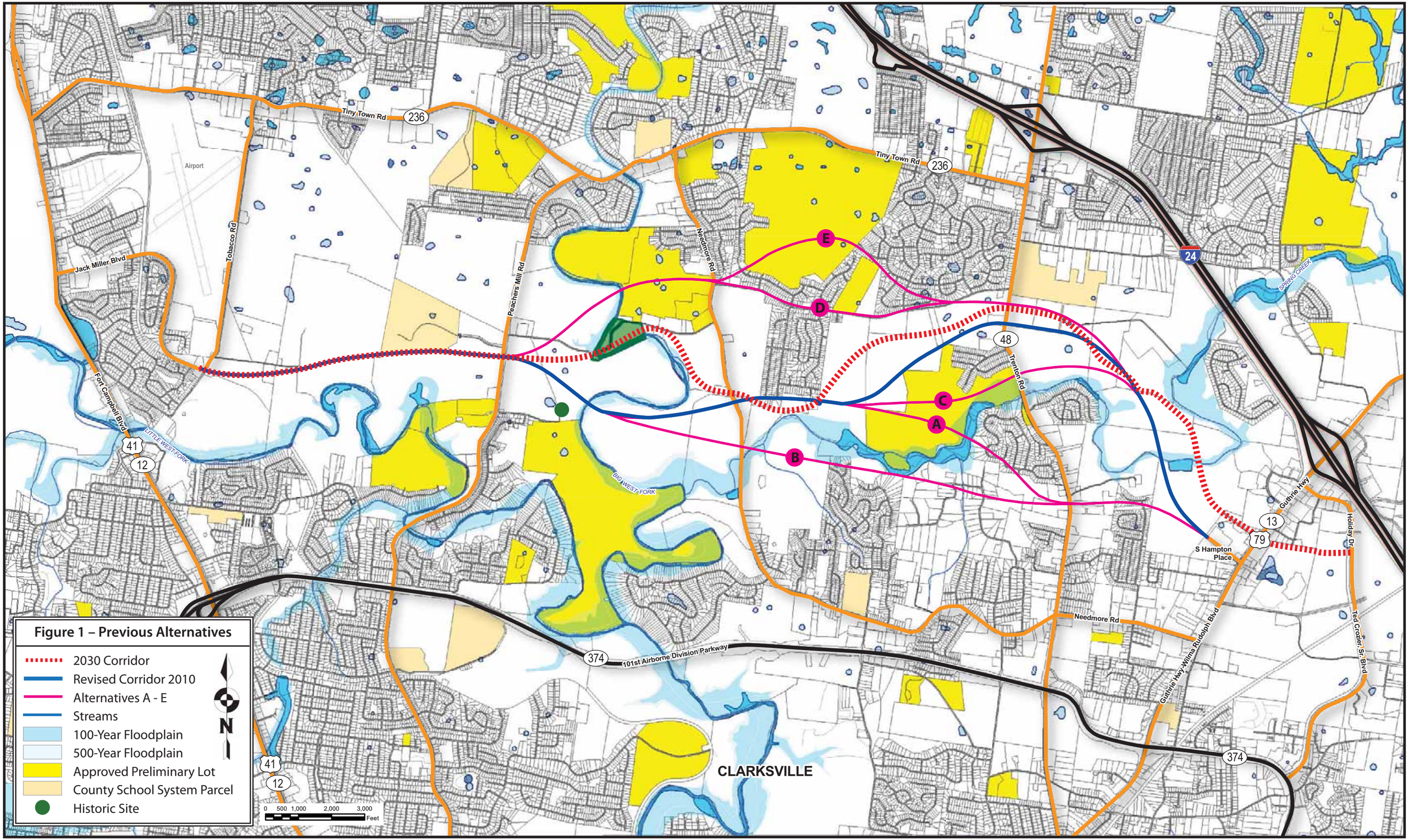

Figure 1 – Previous Alternatives

- 2030 Corridor
- Revised Corridor 2010
- Alternatives A - E
- Streams
- 100-Year Floodplain
- 500-Year Floodplain
- Approved Preliminary Lot
- County School System Parcel
- Historic Site

Need for the East-West Corridor

Based on a traffic evaluation of the 2008 update to the MPO travel demand model as well as available planning reports for the Clarksville area, an East-West Corridor is still needed in the project area due to the following findings:

1. Demand for new housing is strong;
2. Traffic volumes are still growing;
3. Widening existing roadways will add marginal levels of new capacity;
4. Widening existing east-west roadways cannot be done in isolation; and
5. Spacing of existing principal arterials is inadequate.

Demand For New Housing Is Strong

Projected population growth, approved subdivision plats and the availability of developable land indicate strong demand for new housing in the vicinity of Tiny Town, Trenton, Peachers Mill, and Needmore Roads.

- Projections show that the study area will experience some of the largest population increases in Clarksville over the next 25 years. As of October 2010, the study area included 12 approved subdivision plats with more than 2,300 preliminary lots. Employment is expected to expand along the I-24 corridor between US 79 and the state line, especially in and around Commerce Park ("Mega Site").
- Growth along these existing corridors will put more pressure on the existing roadway network.
- An additional East/West Corridor between Tiny Town Road and 101st Airborne Division Parkway will allow for better traffic distribution on the existing roadway network.

Traffic Volumes Are Still Growing

Based on TDOT count station data, traffic has been increasing within the study area for the past 3 years (2007-2009) at a faster rate than the last 10 years (2000-2009). Table 1 shows the 3-year average growth rate compared to the 10-year average growth rate for study area roadways.

Table 1: Traffic Growth Rates

Roadway	3-yr Avg. Growth Rate	10-yr Avg. Growth Rate
SR 236 (Tiny Town Rd)	10.1%	4.5%
SR 12 (Fort Campbell Blvd)	10.4%	1.4%
SR 374 (101st Airborne Division Pkwy)	14.2%	3.0%
SR 48 (Trenton Rd)	10.2%	4.0%

The most recent update of the Clarksville MPO Travel Demand Model (TDM) shows portions of many study area roadways functioning at a Level of Service (LOS) of E and F in the horizon year of 2035, which indicates a need for transportation improvements in the interim in anticipation of these future capacity issues (Refer to Table 2). It should be noted that the volumes projected in the TDM use less aggressive growth rates than the TDOT historical counts indicate. The TDM growth rates identified within the study area ranged from 0.5% to 6.5%.

As the project area continues to grow, capacity issues on existing roadways will worsen. Not only will the existing east-west roadways need to be widened, but the north-south connectors will also need to be widened to accommodate the anticipated increase in development. An additional east-west arterial is needed to better distribute the traffic on the north-south connectors as well as to relieve the capacity issues on Tiny Town Road and 101st Airborne Parkway while providing connectivity for residents in the area.

Although it was not within the scope of this study to re-run the TDM with the East-West Corridor included in the network, traffic analysis was performed to estimate how much traffic would use the new corridor. This evaluation examined how much traffic would need to be removed from study area roadways in order for them to operate at an acceptable LOS. Although not all of the additional traffic would divert to the new East-West Corridor, it can be anticipated that some percentage of this traffic will use the "path of least resistance" when determining their route, which will improve the LOS levels shown in Table 2. Using this philosophy, it is anticipated that in 2035 the East-West Corridor will achieve average daily traffic (ADT) volumes between 15,000 and 23,000. Further study is needed to forecast accurate traffic volumes on the East-West Corridor.

Table 2 provides a comparison between the 2010 TDOT count station ADT volumes and associated LOS and the projected 2035 ADT volumes and associated LOS from the TDM.

Table 2: 2010 and 2035 Traffic Volumes and LOS

Roadway	TDOT Count Sta.	2010 ADT [1]	2010 LOS	2035 ADT [2]	2035 LOS
SR 236 west of Peachers Mill Rd	153	22,285	D	24,773	D
SR 236 west of Trenton Rd	11	19,806	B	40,320	F
SR 13 north of Needmore Rd	98	32,744	C	48,510	E
SR 12 north of 101st Airborne	91	34,750	C	41,104	D
SR 374 west of Peachers Mill Rd	181	28,705	E	34,397	F
SR 374 b/t Peachers Mill & Trenton	182	27,625	E	48,824	F
SR 374 east of Trenton	180	21,744	D	26,809	E
SR 48 north of Needmore	97	11,776	D	27,346	E / F
Peachers Mill Rd	110	7,000	A	18,523	C
Needmore Rd	120	4,810	A	24,078	F

1- 2010 ADT information obtained from TDOT count station data.
2- 2035 ADT information obtained from Clarksville MPO travel demand model.

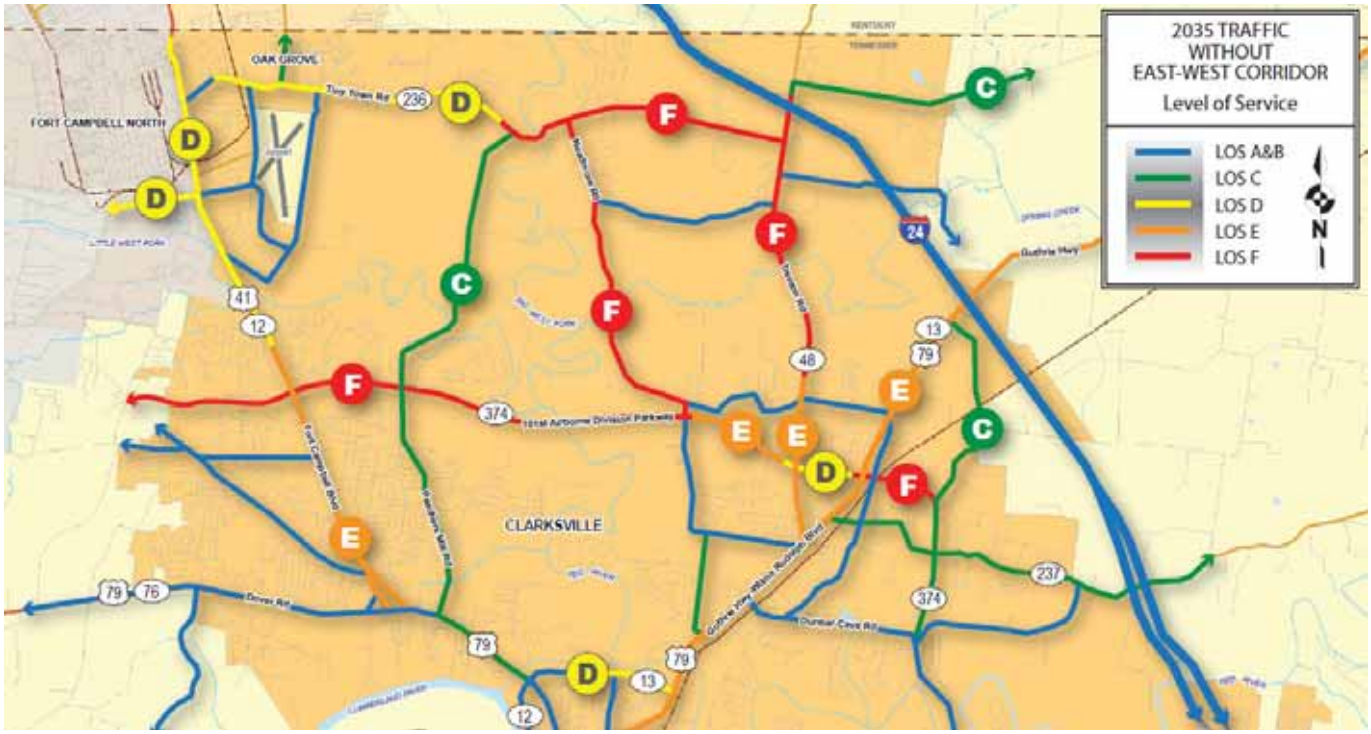

Figure 2 – 2035 Future Level of Service Map

Widening Existing Roadways Will Add Marginal Levels Of New Capacity

As stated previously, widening existing east-west roadways may address capacity issues. It will not solve the long term problems associated with traffic distribution on the roadway network. Furthermore, as more lanes are added, the marginal vehicle capacity per additional lane declines incrementally (i.e., you will not achieve as much benefit widening from 5 to 7 lanes as you do widening from 2 to 4 lanes).

Widening Tiny Town Road and SR 374 Cannot Be Done In Isolation

The north/south corridors will also need to be widened to accommodate future traffic demand. Additionally, geometric and safety improvements will be needed on the existing roadways to handle projected traffic.

Inadequate Principal Arterial Spacing

The geometric configuration of the roadway network must be related to the spatial distribution of the activity centers to be served, travel patterns, and traffic volumes generated. The more intense the development, the closer the arterial spacing required. According to FHWA guidance, arterials serving suburban areas should be spaced 1 to 2 miles apart. Existing zoning in the study area largely supports low and medium density suburban residential development (3-5 dwelling units per acre), and Tiny Town Road and 101st Airborne Division Parkway are spaced approximately 3 miles apart.

Connectivity to I-24

While not the focus of this study, a new East-West Corridor could also provide an important new connection to Interstate 24 (I-24) and support east-west travel more generally across I-24 in Clarksville.

As population and employment growth continues in the study area and along I-24, a new connection to and across I-24 could relieve as well the traffic demands on Wilma Rudolph Boulevard.

Section 2 – What Is The Optimum Corridor Location To Be Preserved?

Evaluation of Alternatives

The following alternatives were evaluated as part of this study update (refer to Figure 1):

1. Alternatives from the 2007 *Jack Miller Thoroughfare Needs Assessment*
    a. Alternative A
    b. Alternative B
    c. Alternative C
    d. Alternative D
    e. Alternative E
2. City Alternative
3. Alternative from the *2030 Smart Growth Plan*
4. Four alternatives identified at the June 2010 public meeting
    a. Widening of 101st Airborne Division Parkway
    b. Widening of Tiny Town Road
    c. Extension of Tiny Town Road from Trenton Road to Wilma Rudolph Boulevard
    d. Connection of Gate 4 to I-24 in Kentucky

Pros and cons were developed for each alternative based on traffic projections, topography, land uses and other physical constraints in the project area. The pros and cons for each alternative are listed in Tables 3 through 6.

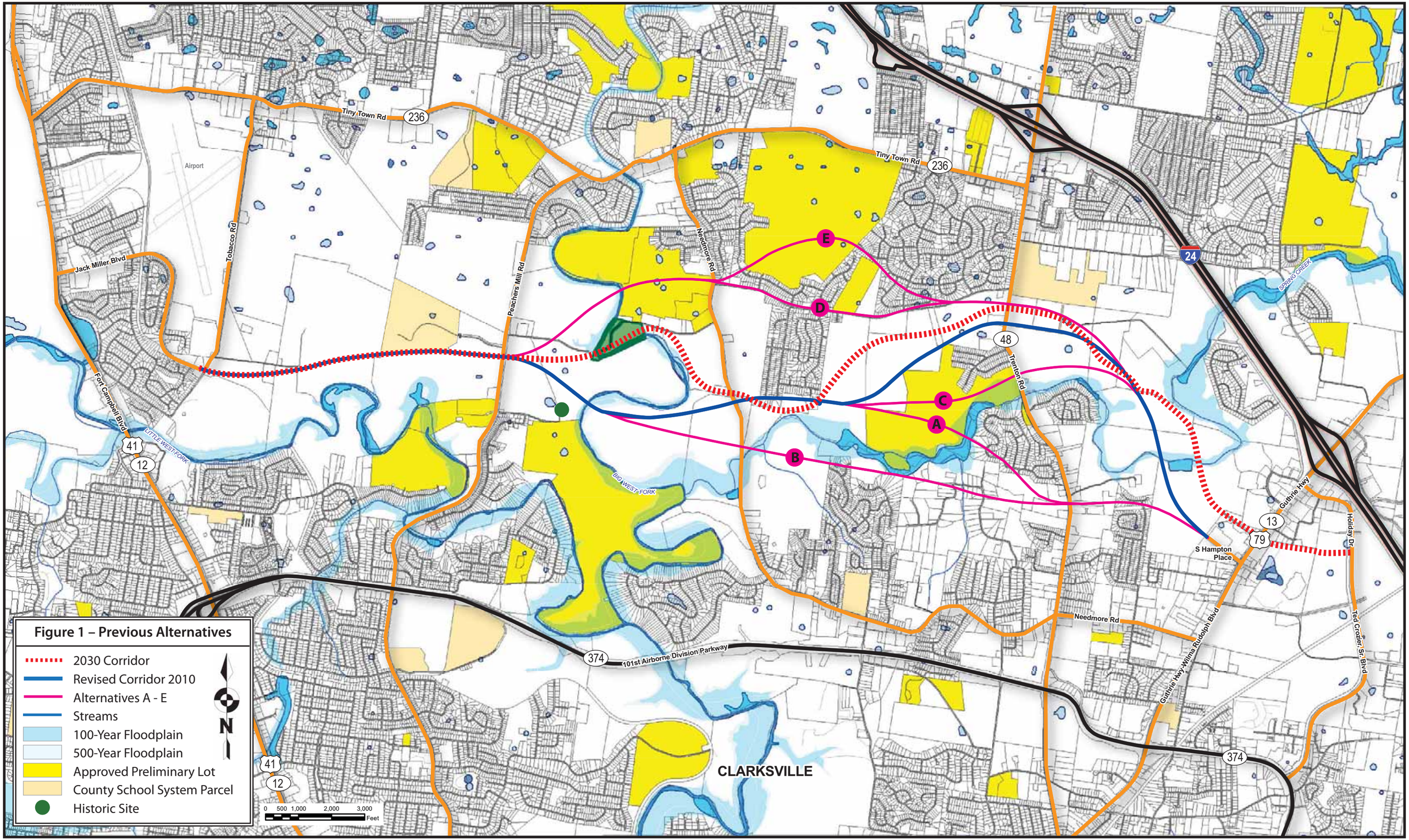

Figure 1 – Previous Alternatives

- 2030 Corridor
- Revised Corridor 2010
- Alternatives A - E
- Streams
- 100-Year Floodplain
- 500-Year Floodplain
- Approved Preliminary Lot
- County School System Parcel
- Historic Site

Table 3: Alternatives from 2007 Jack Miller Thoroughfare Needs Assessment

ALTERNATIVE	PROS	CONS
Alternative A	• Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• TVA transmission line proximity will greatly influence the alignment location. • Steep topography east of Trenton Road and east of Needmore Road. • Impacts approximately 57 parcels and lots.
Alternative B	• Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• Most inconvenient to the population; serves fewer developments. • Steep topography east of Trenton Road. • Impacts approximately 62 parcels and lots.
Alternative C	• Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• Longer route than Alternatives A and B. • Corridor is located through a developing subdivision. • Steep topography east of Trenton Road and east of Needmore Road. • Flood plain issues west of Trenton Road. • Impacts approximately 39 parcels and lots.
Alternative D	• Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• Longer route than Alternatives A, B and C. • Significant number of residential driveways. • Impacts approximately 79 parcels and lots.
Alternative E	• Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• Farther north of 101st Airborne and therefore might not attract as much traffic. • Longer route than Alternatives A, B, C and D. • Impacts approximately 66 parcels and lots.

Table 4: Revised City Alternative

ALTERNATIVE	PROS	CONS
Revised City Alternative	• Impacts fewer parcels and lots than Alternatives A-E . • Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• Longer route than Alternatives A, B, C and D. • Impacts approximately 40 parcels and lots.

Table 5: Alternative from Smart Growth 2030 Plan

ALTERNATIVE	PROS	CONS
From Smart Growth 2030 Plan	• Provides connection to Ted Crozier Blvd., which will alleviate some of the congestion issues on Wilma Rudolph Blvd. in the vicinity of I-24. • Provides east-west arterial spacing of approximately 1½ miles for growth area (including approved plats with 2,337 preliminary lots). • Provides connections for growth area to/from Wilma Rudolph Boulevard (St. Bethlehem area) and Ft. Campbell Boulevard.	• Longer route than Alternatives A – E and City Alternative • Goes through Billy Dunlop Park. • Topography issues east of Needmore Rd. • Flood plain issues between Peachers Mill Rd and Needmore Rd.

Table 6: Alternatives from 2010 Public Meeting

ALTERNATIVE	PROS	CONS
Widen 101st Airborne *(4 to 6 lanes)*	• Addresses existing capacity issues. • Ability to add lanes to existing facility without building a new road. • No additional ROW required.	• Widening from 4 to 6 lanes does not meet projected traffic need; 2035 LOS with widening = E. • Adding capacity to 101st Airborne Division Pkwy will put more pressure on the surrounding street network because more traffic will be funneled to this existing roadway.
Widen Tiny Town *(5 to 7 lanes)*	• Adds minor improvement to capacity. • Ability to add lanes to existing facility without building a new road.	• Widening from 5 to 7 lanes will not meet the future demand; as more lanes are added, the marginal vehicle capacity per additional lane declines incrementally. • Adding capacity to Tiny Town Rd will put more pressure on the surrounding street network because more traffic will be funneled to this existing roadway. • Tiny Town Rd is located too far north to divert traffic from 101st Airborne Division Pkwy. • Tiny Town Rd was recently widened by TDOT to 5 lanes. A 2nd widening would have complex ROW impacts. (25 acres ROW required) • Extensive work/cost required to remove curb and gutter and storm drain system. • Impacts approximately 80 parcels (at least 40 commercial properties).
Extension of Tiny Town *(from Trenton Road to SR 79)*	• Serves a limited role in access to support local development.	• The existing and future capacity issues on Tiny Town Rd prevent the extension to SR 79 from being a viable alternative. • No additional capacity provided in the east-west direction. • Does not divert traffic from 101st Airborne Division Parkway. • Residential relocations required. • Extension would run almost parallel to I-24 and would be in such close proximity that it might not attract much traffic/would be slower than using I-24.
Connection to Gate 4 to I-24 in KY	• Would provide base traffic with another route for reaching I-24.	• Based on existing traffic counts for the interchange of I-24 and Trenton Road, it does not appear that a connection from Gate 4 to I-24 would divert enough traffic. • Outside City and State's jurisdiction. FHWA and KYTC approval and funding required. TDOT will not fund a road in Kentucky. • No increased connectivity in Clarksville. Does not provide a future east/west route to accommodate projected growth in the area. • Will not improve the LOS on critical roads such as 101st Airborne Division Pkwy and Tiny Town Rd. • Does not aid in the traffic congestion that new developments north of 101st Airborne Division Pkwy will produce.

Based on an assessment of the pros and cons associated with each alternative, it is recommended that the City move forward with the corridor options shown in Figure 3.

These corridor options should be further evaluated using the Context Sensitive Solutions (CSS) and National Environmental Policy Act (NEPA) process. Federal agencies are required to assess environmental impacts and appropriate mitigation prior to making major decisions on projects that use federal funding. According to FHWA, the NEPA process allows transportation officials to make project decisions that balance engineering and transportation needs with social, economic, and environmental factors. And, during the process, a wide range of stakeholders including the public, businesses, interest groups and governmental agencies provide input into the project and the associated environmental decisions. This process is explained in more detail in Section 3.

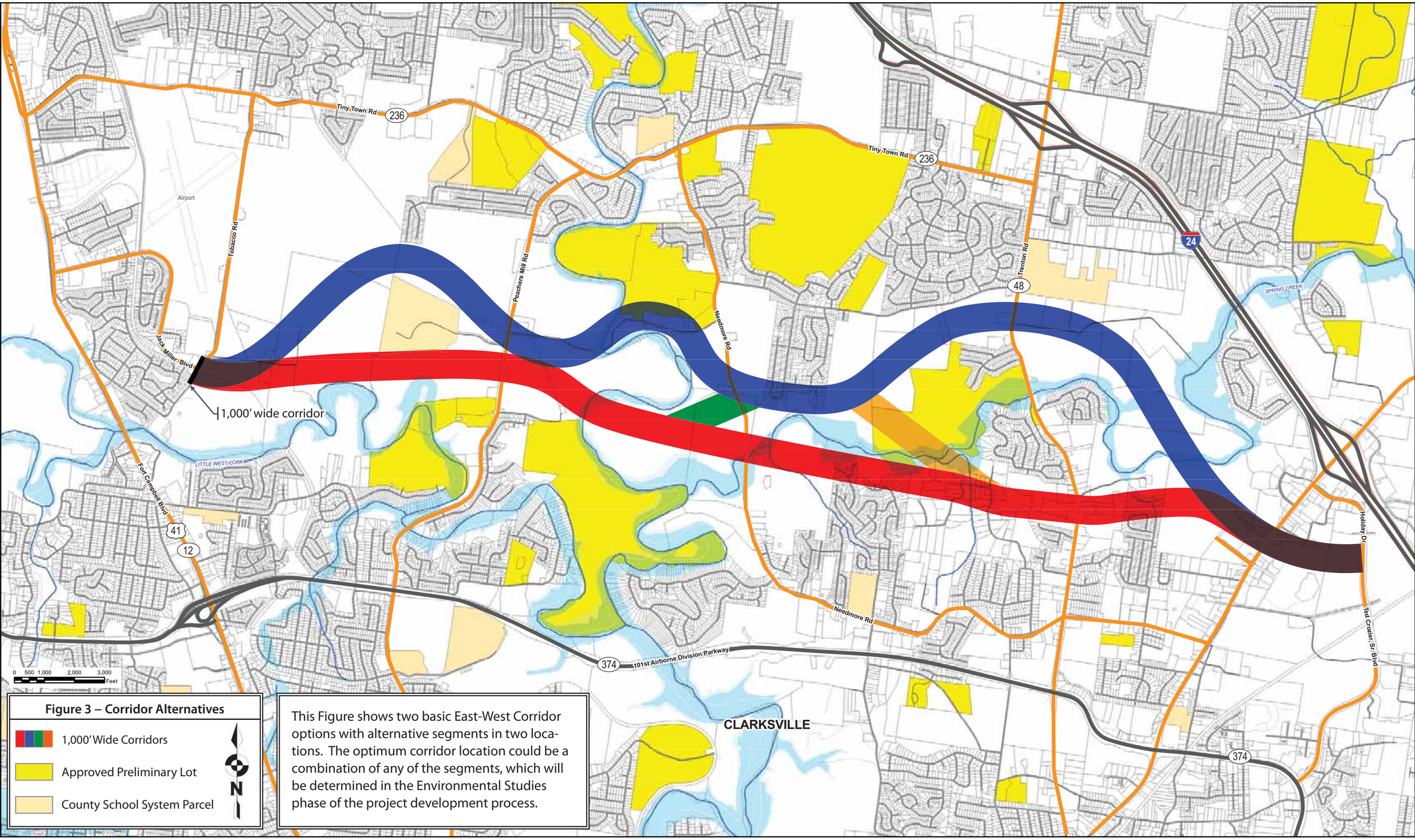

Figure 3 – Corridor Alternatives

- 1,000' Wide Corridors
- Approved Preliminary Lot
- County School System Parcel

This Figure shows two basic East-West Corridor options with alternative segments in two locations. The optimum corridor location could be a combination of any of the segments, which will be determined in the Environmental Studies phase of the project development process.

Environmental Issues

This update to the *Jack Miller Thoroughfare Needs Assessment* provides a preliminary environmental screening for the five alternatives from the original study plus the six additional alternatives identified by the City and the public. The purpose of the preliminary environmental screening is again to begin documenting potential environmental concerns early in the planning process. As with original study, it should be stressed that this screening only includes a basic records check for the resources described below. This screening does not include the identification of potential hazardous materials sites, ecologically sensitive sites or archeological sites. A more comprehensive analysis of the potential environmental constraints in the area should be conducted during the environmental study phase.

Floodplains: The Federal Emergency Management Agency's (FEMA) flood zones are shown in Figure 4. Because the Big West Fork and Spring Creek flow through the study area, all of the alternatives located in Tennessee cross a 100-year flood zone at least once. Alterations to streams or other aquatic sites designated as waters of the State or waters of the United States require Aquatic Resource Alteration Permits (ARAP) from the State of Tennessee and permits from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act.

Wetlands: The National Wetlands Inventory (NWI) maps were reviewed for known wetlands on all of the alternatives. According to the NWI maps, the alternatives cross known wetlands within the FEMA 100 year-flood zones. Outside the flood zones, the proposed alignments can easily avoid the known wetlands. All wetland impacts require confirmation by, and coordination with, permitting agencies. They require ARAPs from the State of Tennessee. Almost all require permits from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act. Other agencies, such as the U.S. Fish and Wildlife Service and the Environmental Protection Agency may be involved in the permitting process.

Historic Resources: The State Historic Preservation Office records were reviewed to determine if any historic resources are located in the project area. The Allen House, an approximately 3.9 acre listing on the National Register of Historic Places (NRHP), is the only property within the project area. The location of the Allen House is shown in Figure 4. The property was considered in the proposed alternatives, and the current alternatives have no effect on the Allen House. For Alternatives A, B and C and the City Alternative, the location of the Allen House should continue to be considered in the project development process.

Figure 4 – Environmental

- 2030 Corridor
- Revised Corridor 2010
- Alternatives A - E
- Streams
- 100-Year Floodplain
- 500-Year Floodplain
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Other
- National Park or Forest
- State Park or Forest
- Local Park or Recreational Area
- Billy Dunlop Park
- Approved Preliminary Lot
- County School System Parcel
- Historic Site

N

0 500 1,000 2,000 3,000 Fee

Tiny Town Rd 236
Airport
Tobacco Rd
Jack Miller Blvd
Fort Campbell Blvd
41
12
LITTLE WEST FORK
Peachers Mill Rd
Needmore Rd
BIG WEST FORK
E
D
C
A
B
Tiny Town Rd 236
24
SPRING CREEK
48
Trenton Rd
Guthrie Hwy
13
79
S Hampton Place
Holiday Dr
Ted Crozier Sr. Blvd
Needmore Rd
Guthrie Hwy-Wilma Rudolph Blvd
374
101st Airborne Division Parkway
374
CLARKSVILLE

Proposed Typical Section and Construction Cost Estimates

The proposed typical section is either a 4-lane divided section with an 18' median or a 5-lane curb and gutter section. The median in the 4-lane section could eventually be used for left turn lanes. For the purpose of construction cost estimating in this report, a proposed ROW width of 120' was used for the 4-lane section and a ROW width of 80' was used for the 5-lane section. It should be noted that the actual ROW width may vary.

Preliminary estimated ROW and construction costs for the East-West Corridor are provided in Table 7.

Table 7: Preliminary Construction Costs

Typical Section	Estimated ROW Cost	Estimated Construction Cost	Total
4-lane divided	$5 – 8 Million	$32 – 42 Million	$37 – 50 Million
5-lane curb and gutter	$3 – 6 Million	$45 – 59 Million	$48 – 65 Million

Although planning and environmental studies would need to be completed for the entire East-West Corridor, it is unlikely that funding for the entire East-West Corridor will be secured or needed at one time. Therefore, it is anticipated that the project will be designed and constructed in phases.

Logical phases for the project are as follows:

Phase 1 – from Ted Crozier Blvd. or Wilma Rudolph Blvd. to Trenton Rd.;

Phase 2 – from Trenton Rd. to Needmore Rd.;

Phase 3 – from Needmore Rd. to Peachers Mill Rd.; and

Phase 4 – from Peachers Mill Rd. to the Jack Miller terminus.

Section 3 – Implementation Steps

As documented in this study update, the East-West Corridor will benefit the overall transportation network in Clarksville and serve a large area of the City north of the Central Business District, but only if it is implemented. Identification of a funding source and stakeholder support is of critical importance to successful implementation. The only feasible way that a transportation project of this magnitude can be implemented is through the use of federal funding, which typically involves some level of local matching funds.

Pursuant to the National Environmental Policy Act (NEPA), federal agencies are required to consider environmental issues prior to making major decisions on projects that have federal involvement. Federal Highway Administration (FHWA) funds are made available to local governments through the Tennessee Department of Transportation (TDOT) and the MPO, and recipients of federal funds are required to comply with the NEPA process. According to FHWA, the NEPA process allows transportation officials to make project decisions that balance engineering and transportation needs with social, economic, and environmental factors. And, during the process, a wide range of stakeholders including the public, businesses, interest groups and governmental agencies provide input into the project and the associated environmental decisions.

FHWA regulations for implementing NEPA can be found in 23 CFR 771, and require that agencies or local governments undertaking transportation projects with federal funding do the following:

1. Comply with all applicable environmental requirements, including NEPA;
2. Prepare documentation of compliance to a level appropriate to the project's potential to cause harm to the environment;
3. Evaluate alternatives (including the no-build alternative) and make decisions that balance the need for the project with social, economic and environmental impacts of the project;
4. Inform government entities and the public and provide them an opportunity to be involved in decision-making; and
5. Implement measures to avoid, minimize or mitigate environmental impacts.

Additionally, TDOT has developed a Context Sensitive Solutions (CSS) approach that complements and is performed simultaneously and in concert with the NEPA process. The key principles of CSS process are similar to those of the NEPA process and are as follows:

1. Balance safety, mobility, community and environmental concerns;
2. Seek stakeholder input early and continuously;
3. Use an interdisciplinary team tailored to the specific needs of the project;
4. Apply the flexibility inherent within national design standards; and
5. Incorporate aesthetics as an integral part of design.

TDOT incorporates CSS principles into their project development process, from problem definition through alternatives development and evaluation and implementation. The CSS principles that closely correlate with NEPA requirements include stakeholder involvement from a full range of stakeholders, early, open and continuous communication with all stakeholders, and the development of a project that satisfies the purpose and need.

Anticipated Project Development Process

If federal funding is secured and used for the implementation of the East/West Corridor project, the TDOT project development process will be used. The key activities involved in the process and their anticipated duration are illustrated in Figure 5. Although the project development process is time consuming, it will help ensure that the best project is constructed to meet the transportation need as well as the needs of the community.

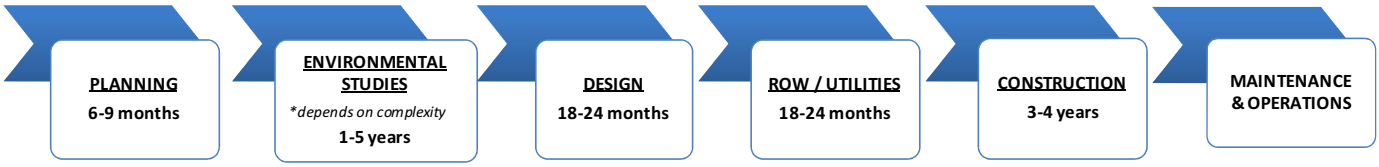

Figure 5 – TDOT Project Development Process and Anticipated Timeline

A brief description of each step of the process is provided below.

Planning

The planning process is initiated with identification of the transportation problem or need. In urban areas, local governments work with the MPO and TDOT to begin planning for projects. The planning phase of the project results in the development of a Transportation Planning Report (TPR). The TPR documents the project's purpose and need, identifies high-level environmental issues within the study area, and documents how well the project alternatives satisfy the stated purpose and need.

It is not the purpose of the TPR to select the optimum location for the corridor. That is accomplished in the Environmental Studies phase of the project development process. Rather, the TPR documents advantages and disadvantages of each corridor option, including those that have more or less impact on the environment. TPR's consider corridors, not specific roadway alignments. Typically, corridor widths range from 500 to 2,000 feet depending on the length of the project and adjacent land uses. The TPR also includes planning level cost estimates for each corridor option.

Under a new FHWA initiative, Planning and Environmental Linkages (PEL), planning and environmental studies are now closely coordinated to create a seamless decision making process that minimizes duplication of effort, promotes environmental stewardship, and reduces delay from planning through to implementation.

Environmental Studies

The next phase of the process is the Environmental Studies phase, where solutions to the problem are fully identified and a preferred alternative is selected. There are varying levels of studies required depending on the extent of the environmental impacts associated with the project:

- **Minor Impacts** – Categorical Exclusion
- **Moderate Impacts** -- Environmental Assessment
- **Complex Impacts** – Environmental Impact Statement

FHWA will determine the appropriate study level for the project based on the impacts identified in the TPR. The Environmental Studies phase varies in length and ranges anywhere from a few months for a project with minor impacts to 1 year for moderate impacts and between 3-5 years for projects with complex impacts.

Design Phase

The Design Phase is where implementation of the solution developed in the environmental document begins. This phase includes development of ROW plans, construction plans, contractual agreements for community commitments, and approved environmental permits. Final construction plans include design of the physical infrastructure including, but not limited to, the roadway, sidewalks, traffic signals, signing, bridges and retaining walls, and the stormwater drainage system. The design also includes the means to successfully complete the project, which includes erosion prevention and sediment control as well as traffic control during construction.

ROW and Utilities

Any ROW needed for the project will be identified in the development of the ROW plans in the Design Phase. Coordination with affected utilities will also occur in this phase to identify any utilities that need to be relocated as a result of the project. If applicable, coordination with railroads would also be performed during this phase.

Construction Phase

The Construction Phase of the project is, as its name implies, when the project is actually constructed. During this phase, the project will be advertised, bids will be taken, and a construction contract will be awarded. The construction will be performed by the selected contractor and his work will be monitored to ensure compliance with the construction plans.

Maintenance and Operations

After the project is complete and operational, it should be evaluated in terms of how well it solves the problem and achieves the vision. Lessons learned should be captured in order to improve the process for future projects. Finally, maintenance of the project should be monitored to ensure that it meets the needs of the users and operates in a safe and efficient manner.