

# FUNCTIONAL DESIGN REPORT

**PROPOSED CONSTRUCTION OF A NEW  
TRIAL COURT FACILITY  
J. MICHAEL RUANE JUDICIAL CENTER  
SALEM, MA**

**Preliminary (and cursory)  
comments on EarthTech  
Draft Traffic Study received  
by the City 12/20 for  
distribution to the Steering  
Committee**

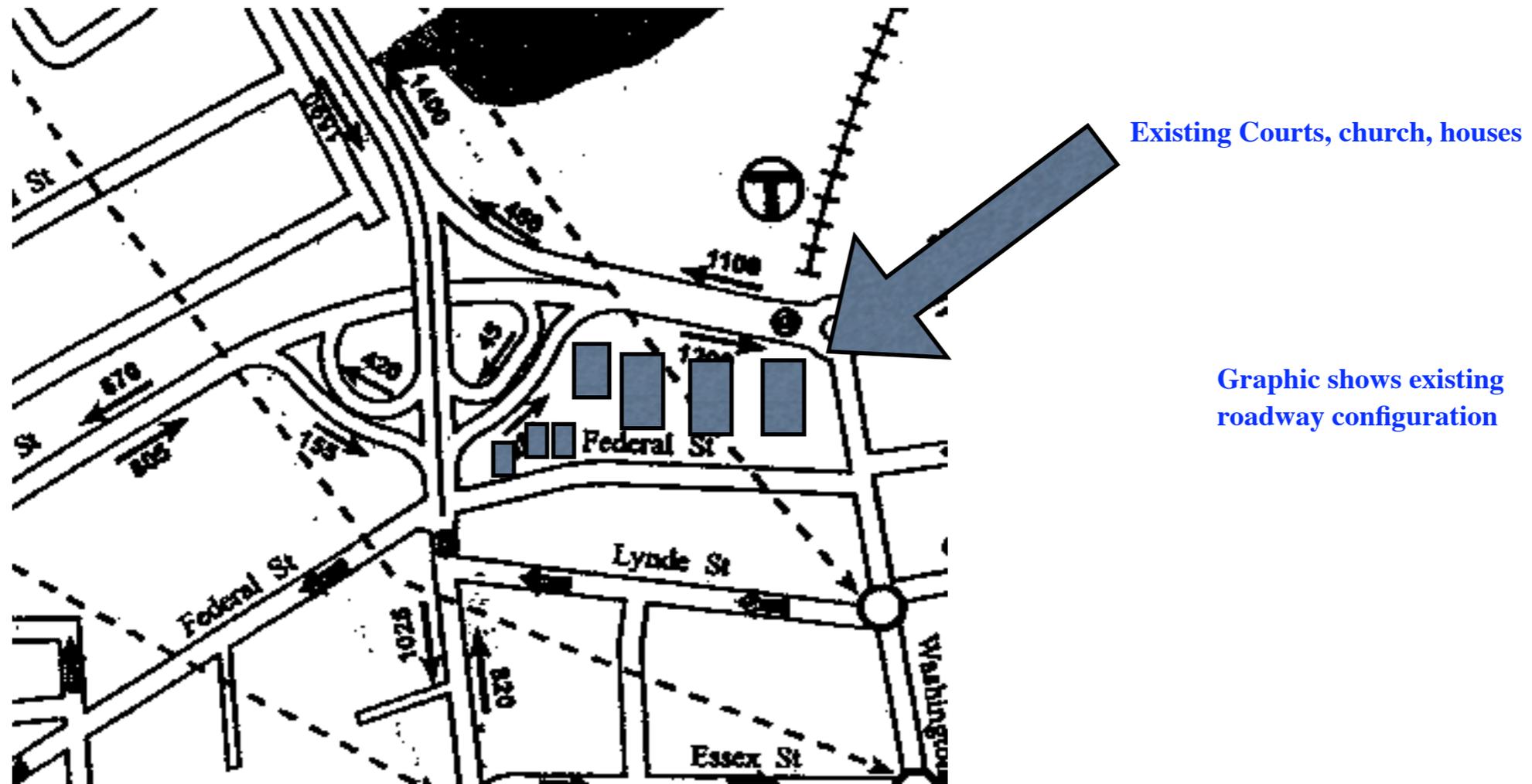
**Comments in blue  
throughout these pages  
by ASNA/FSNA Courthouse Steering  
Committee  
December 28, 2006**

*Prepared for:*  
**Massachusetts Highway Department**

*Prepared by:*  
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**November 2006**

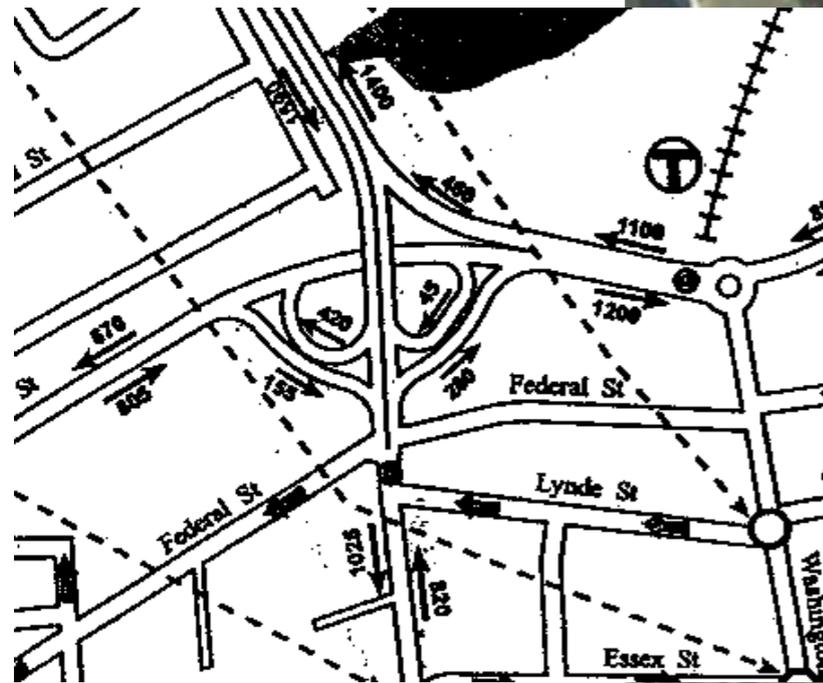
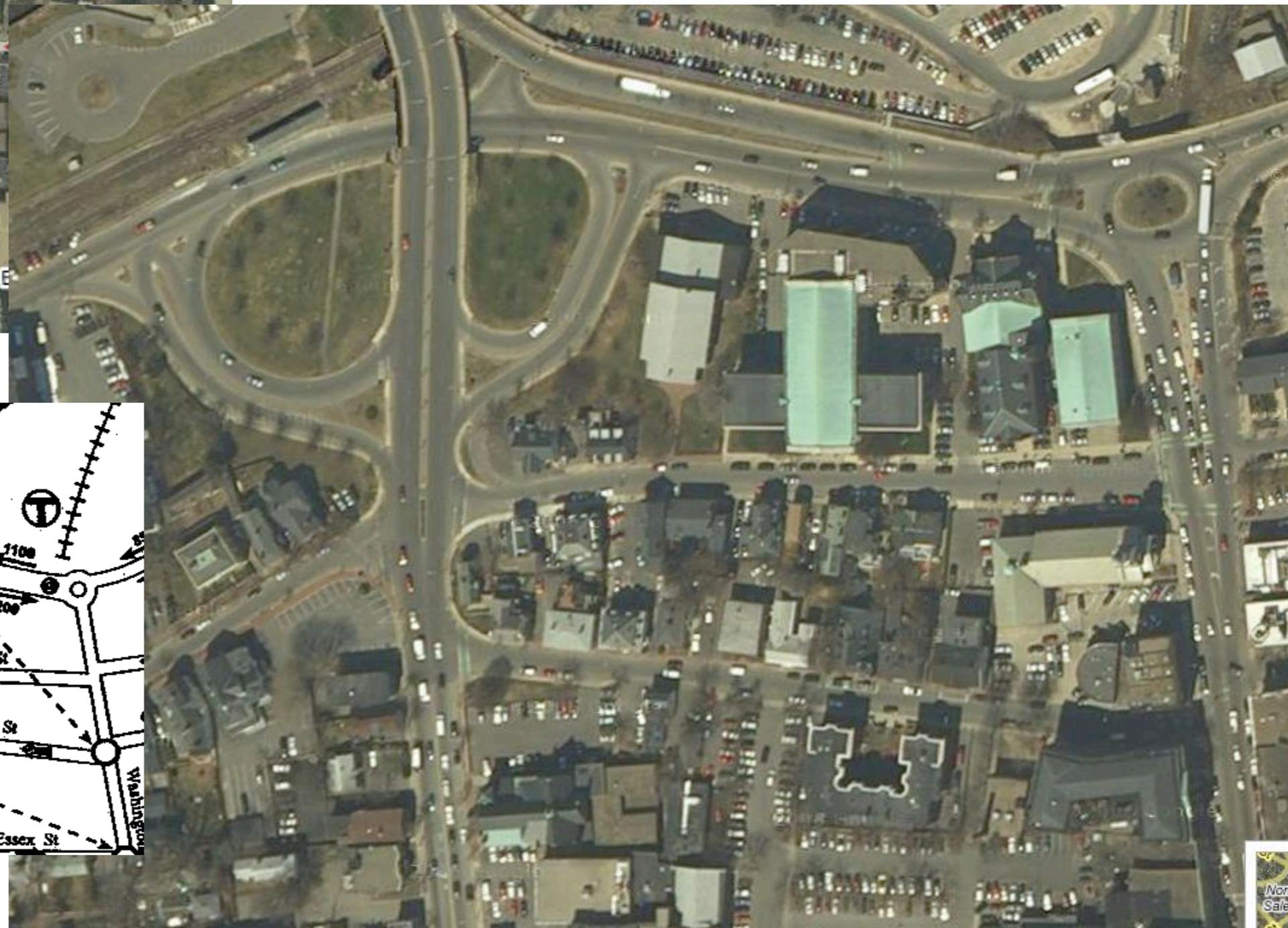
**DRAFT**



**Figure 2-5**  
**Base Year (2004)**  
**AM Peak Hour**  
**Balanced Traffic Conditions**  
**(Partial view of graphic)**



Google maps shows the existing conditions by aerial photograph. The previous plans should reflect actual conditions at the intersection of Federal and North Streets. (Subtle differences of upramp from Bridge Street, Federal Street curvature in front of church).



**(No graphic found)**

**No graphic found which shows  
future roadway configuration**

**Figure  
Build 2016  
AM Peak Hour  
Balanced Traffic Conditions**

new roadway will run adjacent to the MBTA commuter rail lines from the bridge into Beverly to Bridge Street just west of Saint Peter Street. The project also includes replacing the existing rotary at the Bridge Street/Washington Street intersection with a fully-actuated traffic signal and increasing capacity. At the Bridge Street/Saint Peter Street intersection, Bridge Street is being widened to provide additional capacity and a fully-actuated traffic signal is being installed.

Bridge Street (Route 107) Reconstruction Project between Washington Street and Flint Street

This is another MassHighway project that is currently at the 25% design stage. This project includes widening Bridge Street to provide two travel lanes in each direction and signalizing both the Bridge Street at MBTA Drive and East Ramps intersections. Increased capacity and upgraded signal operations are proposed for the Bridge Street and Flint Street intersection, as well.

North Street (Route 114)

This project includes the reconstruction of North Street from Essex Street to the Peabody city line. No capacity improvements are proposed, as this project will maintain the existing two lane cross section. A number of traffic signals are proposed to be upgraded and installed as part of the project, including one at the intersection of North Street and Mason Street and a pedestrian signal just north of Federal Street. Also, interconnection is proposed between the project signals, including a connection between the proposed pedestrian signal north of Federal Street and the existing signal at the North Street/Essex Street intersection.

The projected turning movement volumes for the 2016 No Build Conditions are shown in Figures 5 and 6.

Verbal description of “Build” condition to accommodate future traffic needs

**3.3 Build Conditions**

As mentioned above, the proposed location of the new courthouse is the southeast corner of the Bridge Street/North Street (Route 114) interchange. Building the courthouse at this location requires the elimination of the East Ramps. These ramps currently allow for northbound North Street traffic to access Bridge Street, and for eastbound Bridge Street traffic to access northbound North Street. To accommodate the traffic that will be impacted by the ramp removal, the North Street/Federal Street/West Ramps intersection will need to be reconfigured. As mentioned above, a feasibility study was conducted that determined the best layout and control for the intersection. The following is a description of the features for the proposed redesign of the intersection:

### 3.3 Build Conditions

As mentioned above, the proposed location of the new courthouse is the southeast corner of the Bridge Street/North Street (Route 114) interchange. Building the courthouse at this location requires the elimination of the East Ramps. These ramps currently allow for northbound North Street traffic to access Bridge Street, and for eastbound Bridge Street traffic to access northbound North Street. To accommodate the traffic that will be impacted by the ramp removal, the North Street/Federal Street/West Ramps intersection will need to be reconfigured. As mentioned above, a feasibility study was conducted that determined the best layout and control for the intersection. The following is a description of the features for the proposed redesign of the intersection:

Page 3-2 (Partial text)

No justification for this statement is apparent in the text. (“...requires the elimination of the East Ramps...” Furthermore, no options for traffic schemes to accommodate future traffic needs are apparent in the report.

- Realigning northbound North Street to provide a 61 meter left turning lane to allow northbound traffic to turn left onto the West Ramps to access Bridge Street. This will accommodate the northbound traffic that currently turns right onto the East Ramps to access Bridge Street. The northbound lane arrangement will consist of a through only lane and a left turn only lane.

- Realigning Federal Street and eliminating approximately 19 meters of the North Street center median to allow the westbound Federal Street traffic to travel across North Street to access the West Ramps. This traffic will also be permitted to go right to travel northbound on North Street, but will not be permitted to make left turns onto southbound North Street. Given land constraints, Federal Street cannot be realigned to be directly across the West Ramps. Therefore, an offset maneuver will need to be made for the Federal Street traffic to access the West Ramps.

- Widening of the West Ramps to provide left and right turning lanes to allow the eastbound ramp traffic from Bridge Street to access both directions of North Street. Also, the widened ramp will include two receiving lanes for traffic traveling from North Street to access Bridge Street.
- Signal control at the North Street/Federal Street/West Ramps intersection to regulate all of the movements. Three pedestrian crossings within the intersection are being proposed that will run concurrent with vehicular movements. One crossing Federal Street, and two crossing North Street on either side of Federal Street. The signal phasing will be as follows:
  - Northbound left turn advance; concurrent northbound/southbound with a permitted northbound left turn; eastbound ramp approach; and westbound Federal Street approach.

As mentioned above, the Federal Street approach cannot be lined up with the West Ramps, therefore eastbound and westbound approaches must run as a split phase to maximize safety.

The Build Condition was evaluated and included the improvement projects that were described in the No Build Condition. The Build Condition also included signalization at the Bridge Street and West Ramps intersection, which will require traffic signal control to accommodate the additional traffic that will be traveling through the intersection. The results of the evaluation are described later in this report.

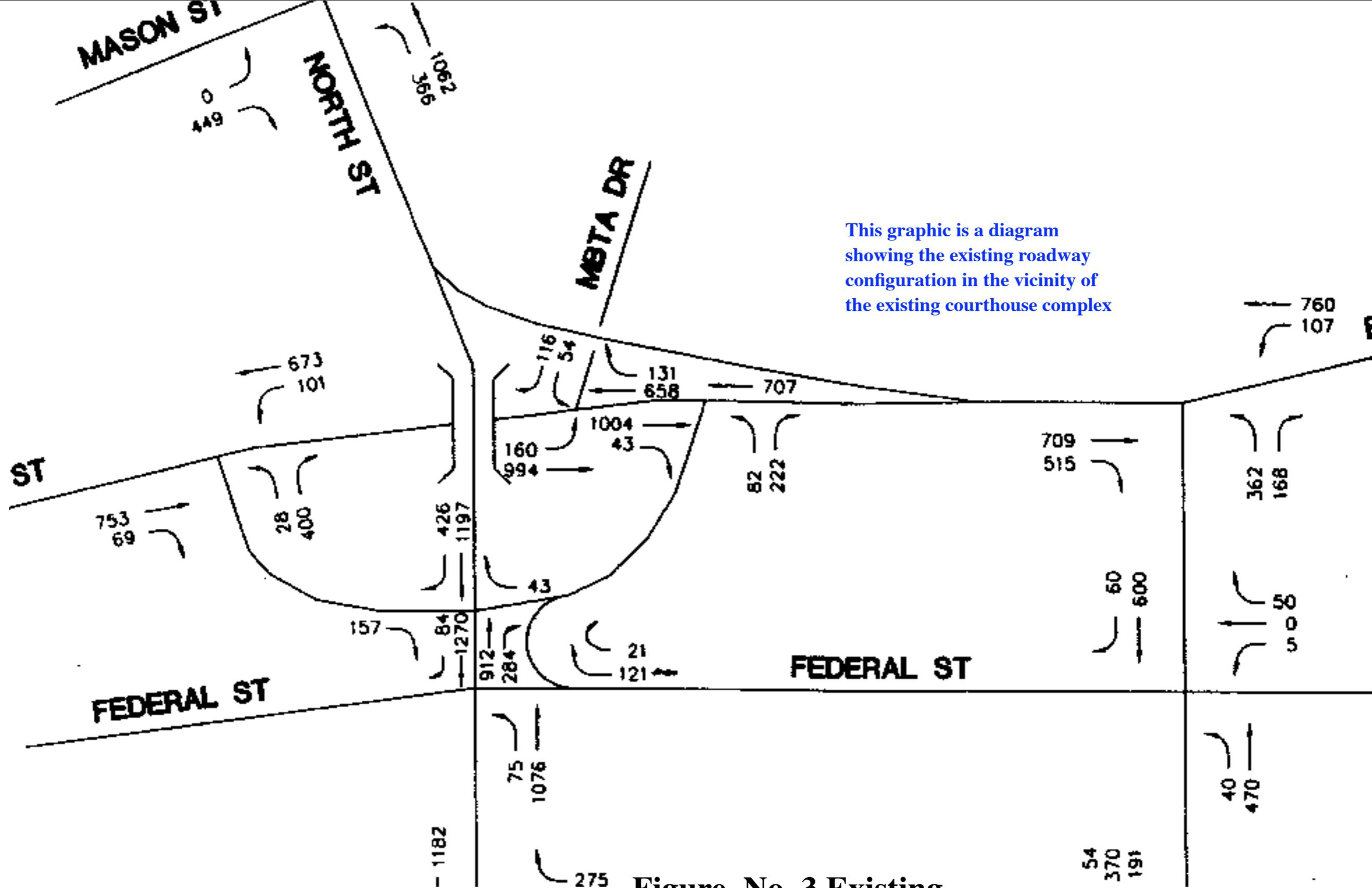
It should be noted that according to a 2001 DCAM study, *Salem Trial Courts Transportation Study*, prepared by Howard/Stein Hudson Associates, no additional

Verbal description of “Build” condition to accommodate future traffic needs

- **Realigning Federal Street and eliminating approximately 19 meters of the North Street center median to allow the westbound Federal Street traffic to travel across North Street to access the West Ramps. This traffic will also be permitted to go right to travel northbound on North Street, but will not be permitted to make left turns onto southbound North Street. Given land constraints, Federal Street cannot be realigned to be directly across the West Ramps. Therefore, an offset maneuver will need to be made for the Federal Street traffic to access the West Ramps.**

**Page 3-3 (Excerpt)**

See graphic “Figure 7” for this diagram.



This graphic is a diagram showing the existing roadway configuration in the vicinity of the existing courthouse complex

**Figure No. 3 Existing Existing 2006 AM Peak Volumes DCAM/Salem Courthouse (Partial view of graphic)**

This graphic is a diagram showing the "Build" roadway configuration in the vicinity of the "new" courthouse complex

Diagrammatically this seems to imply that Federal street has to be "bent" northwards to make the intersection work. In fact, it does not. See Google map photo.

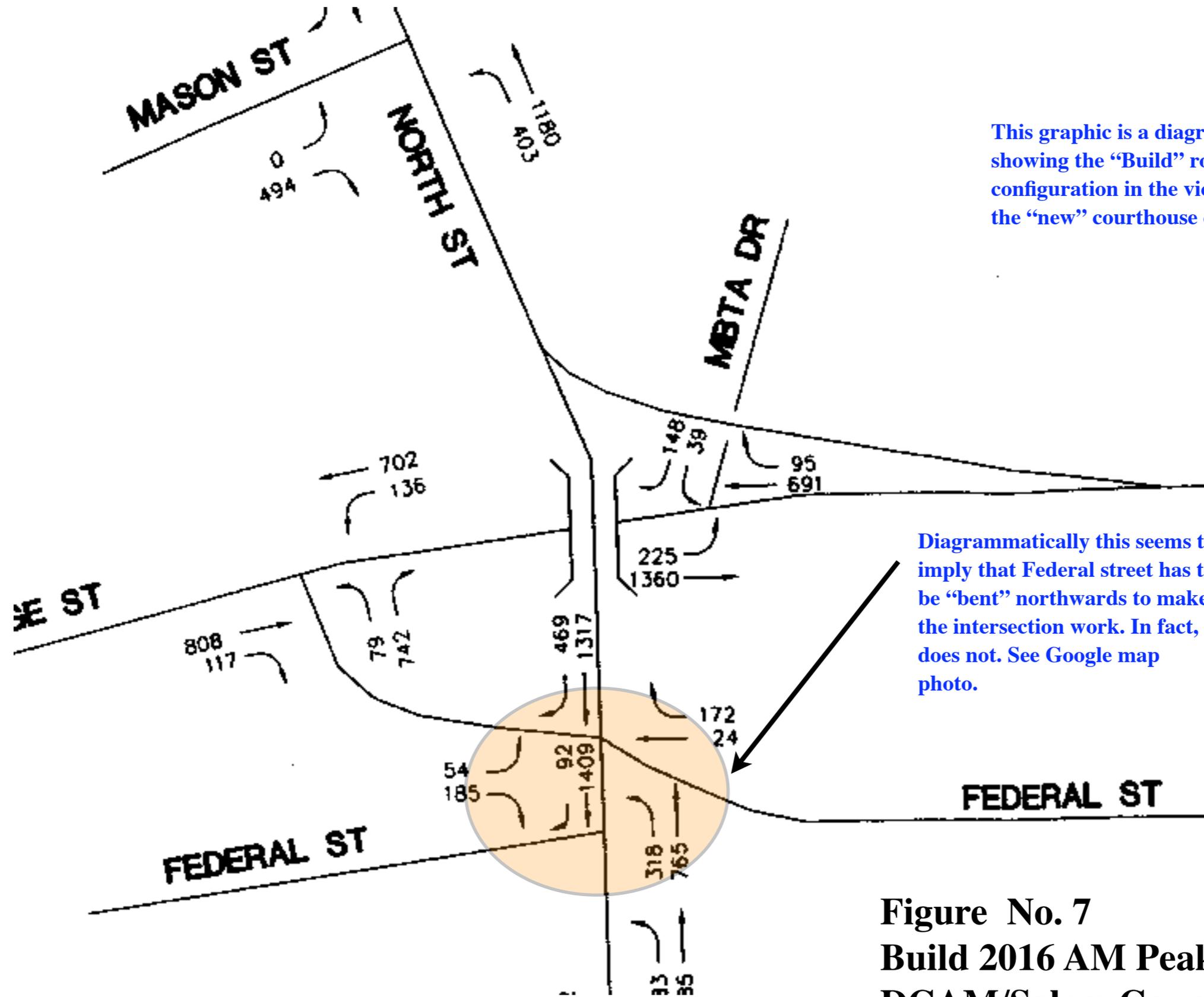


Figure No. 7  
Build 2016 AM Peak Volumes  
DCAM/Salem Courthouse  
(Partial view of graphic)

**Preliminary (and cursory) comments on EarthTech Draft Traffic Study received by the City 12/20 for distribution to the Steering Committee:**

- 1. The Federal Street/North Street roadway configuration shown in the diagram in Figure No. 7 does not reflect the decision announced at the Steering Committee meeting with the architect and DCAM on October 4, 2006. At that meeting, Goody Clancy reported that a decision had been made by DCAM that would be no change to the corner of Federal Street at the intersection with North Street.**
- 2. The existing drawings should be adjusted to reflect accurately the existing conditions as shown in the aerial photograph included in the study.**
- 3. There are no drawings showing the roadways with existing buildings or parking or new parking facilities.**
- 4. There are no drawings showing the roadways with proposed buildings or parking or new parking facilities.**
- 5. There are no options shown for dealing with the future traffic; ie, reversing Federal street in front of courts, reconfiguring the Federal Street North Street intersection, addition of slip ramp, etc.).**
- 6. There is no explanation or justification for the statement on page 3-2 "...requires the elimination of the East Ramps..".**
- 7. The report appears on first review to contain traffic information from 2003, 2005 and 2006. It is important that traffic data be available that shows the impact of the changes to the rotary at Washington and Bridge Streets.**