



KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING



Gambell Street Model Methodology

Gambell Street Redevelopment and Implementation Plan

Date: May 13th, 2014

Project #:17532

To: AMATS Technical Committee; AMATS Policy Committee; Paul Fuhs; Christopher Constant; Craig Lyon; Patrick Flynn

From: Kelly Laustsen; Lillian Tsang, PE; Bob Kniefel, PE; and Marc Butorac, PE, PTOE; Kittelson & Associates, Inc.

This memorandum responds to questions from Teresa Brewer from the Anchorage Metropolitan Area Transportation Solutions (AMATS) Advisory Committee related to the sensitivity analysis conducted for the 4- to 3-lane conversion concept developed for Gambell Street between 3rd and 15th Avenue (documented in the memorandum titled *Sensitivity Analysis of Proposed Three-Lane Cross Section*). Specifically, the questions pertain to the modeling work conducted for the project to develop future volumes for the following scenarios:

- Year 2025 with Gambell Street as a four-lane cross section;
- Year 2025 with Gambell Street as a three-lane cross section;
- Year 2035 with Gambell Street as a four-lane cross section; and
- Year 2035 with Gambell Street as a three-lane cross section.

Each question is summarized below in *italics* with our response in normal text.

- 1. In terms of the Annual Growth Rate, how was it determined? Was it based on regression? Or was it an annual compound growth rate?*

Response: The annual growth rate shown in Table 1 of the memorandum represents an annual compound growth rate. This growth rate is shown for context and comparison between the scenarios, but was not used for any of the turning movement volume development. The turning movements were developed using the model volumes and existing counts and applying the NCHRP 255 methodology.

2. *Include the methodology of how the Year 2025 scenario was created and what assumptions were made with the network as well as land use/distribution.*

Response: The MTP 2035 No Build model and 2007 base model were used to develop the 2025 scenarios. The year 2007 and 2035 assignment trip tables were interpolated to derive the year 2025 assignment trip tables. The 2035 No Build network was then used with the 2025 assignment trip tables to develop the 2025 model.

3. *Include any difference plots: i.e. Year 2025 3 lanes vs. 4 lanes, or Year 2035 3 lanes vs. 4 lanes – which would show clearly graphically where the traffic would get diverted to if Gambell Street were to be narrowed.*

Response: Difference plots for the 2025 and 2035 scenario are provided in Attachment A. As shown in the plots and noted in the memorandum, traffic is primarily diverted from Gambell Street to C Street and Cordova Street, with a portion rejoining Gambell Street via 15th Avenue.

4. *Determine what the freight % would be on Gambell Street for all scenarios and if there's a shift, where do they shift to? Currently, the freight % is 6% on Gambell Street.*

Response: The 2007 base model projects a truck percentage between 13 and 15% on Gambell Street between 3rd Avenue and 15th Avenue. This is significantly higher than the truck percentages observed in counts collected in May 2014, which reflect a truck percentage on Gambell of approximately 3%. The model projects a truck percentage of 15-17% in 2025 and 13-18% in 2035 with a four-lane cross section. When the model was adjusted to assess the impact of converting Gambell Street to a three-lane cross section, the model did not re-assign the truck volumes from Gambell Street. The model shows the same volume of trucks with a three-lane cross-section, but a lower overall volume. This causes the reported truck percentage to increase to 15-21% in 2025 and 15-20% in 2035 with a three-lane cross section (although the actual volume of trucks does not change). Given the differences between the 2007 model and 2013 observed truck counts, the model is likely over-representing the expected number of heavy vehicles and, therefore, conservative in nature. The model outputs indicating the truck volumes and percentages are provided in Attachment B.

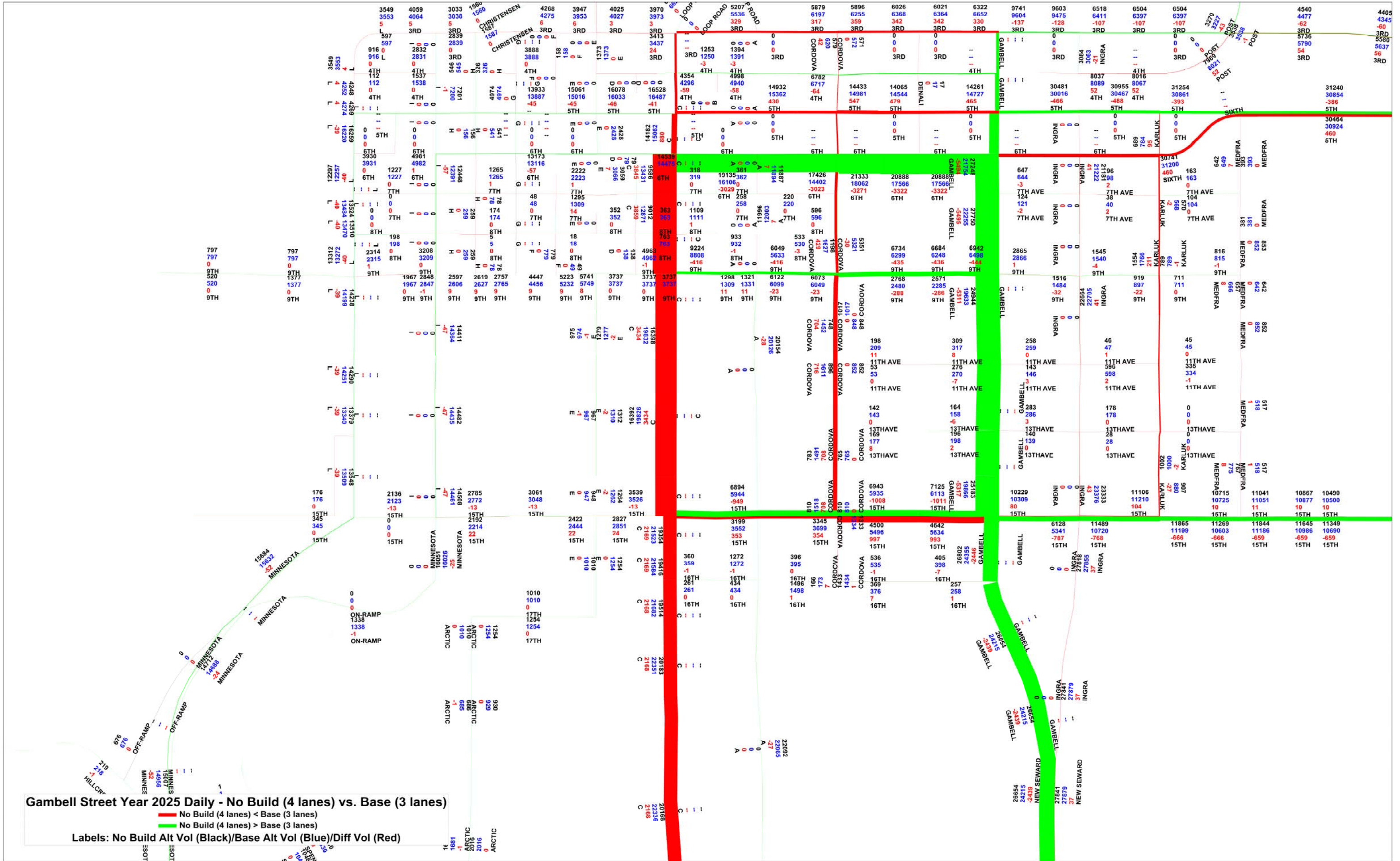
We trust this memorandum adequately addresses the questions raised in regards to the Gambell Street *Sensitivity Analysis of Proposed Three-Lane Cross Section*.

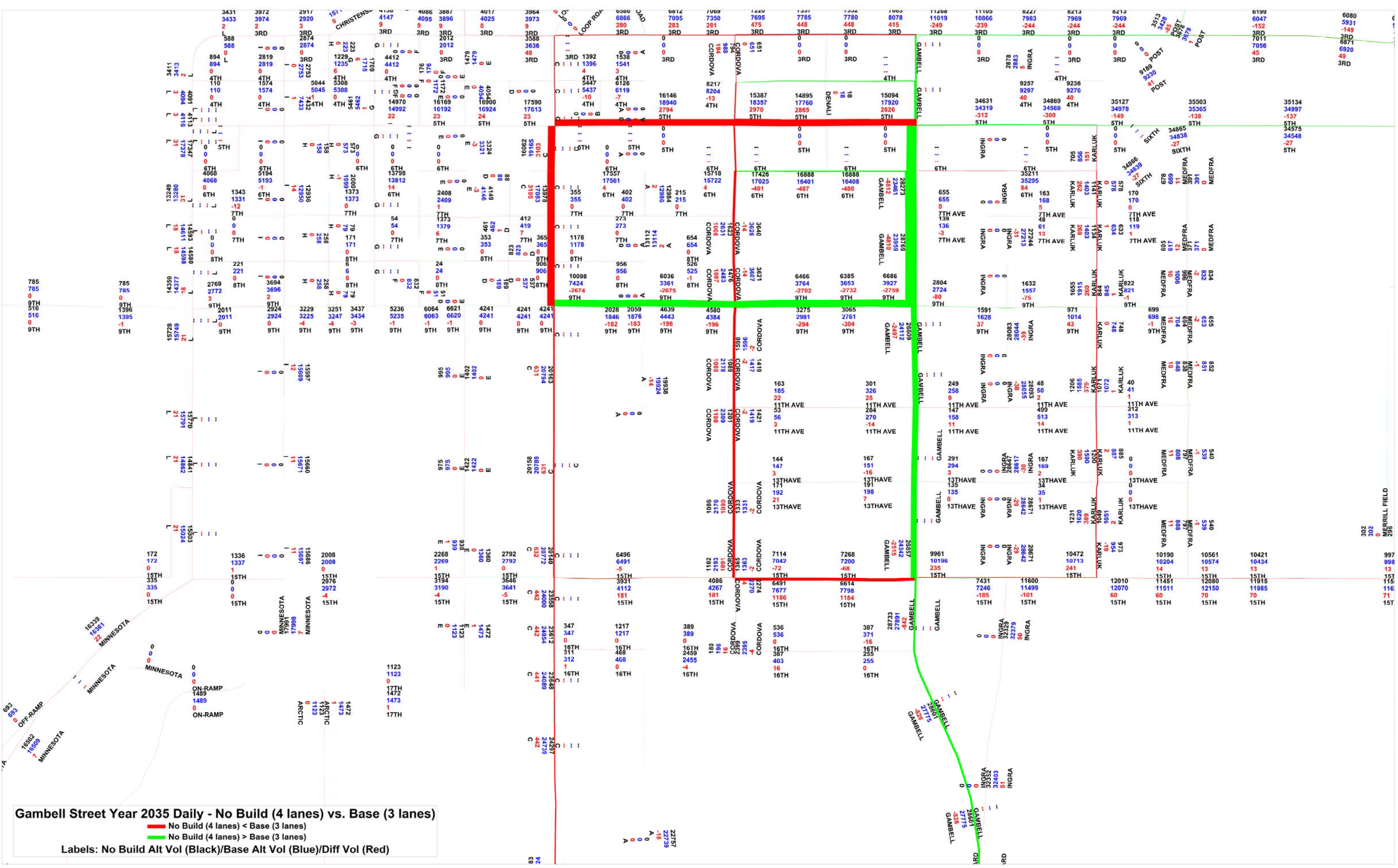
Attachments:

A - 2025 and 2035 Difference Plots

B - 2007, 2025, and 2035 Truck Volumes and Percentages

Attachment A - 2025 and 2035 Difference Plots

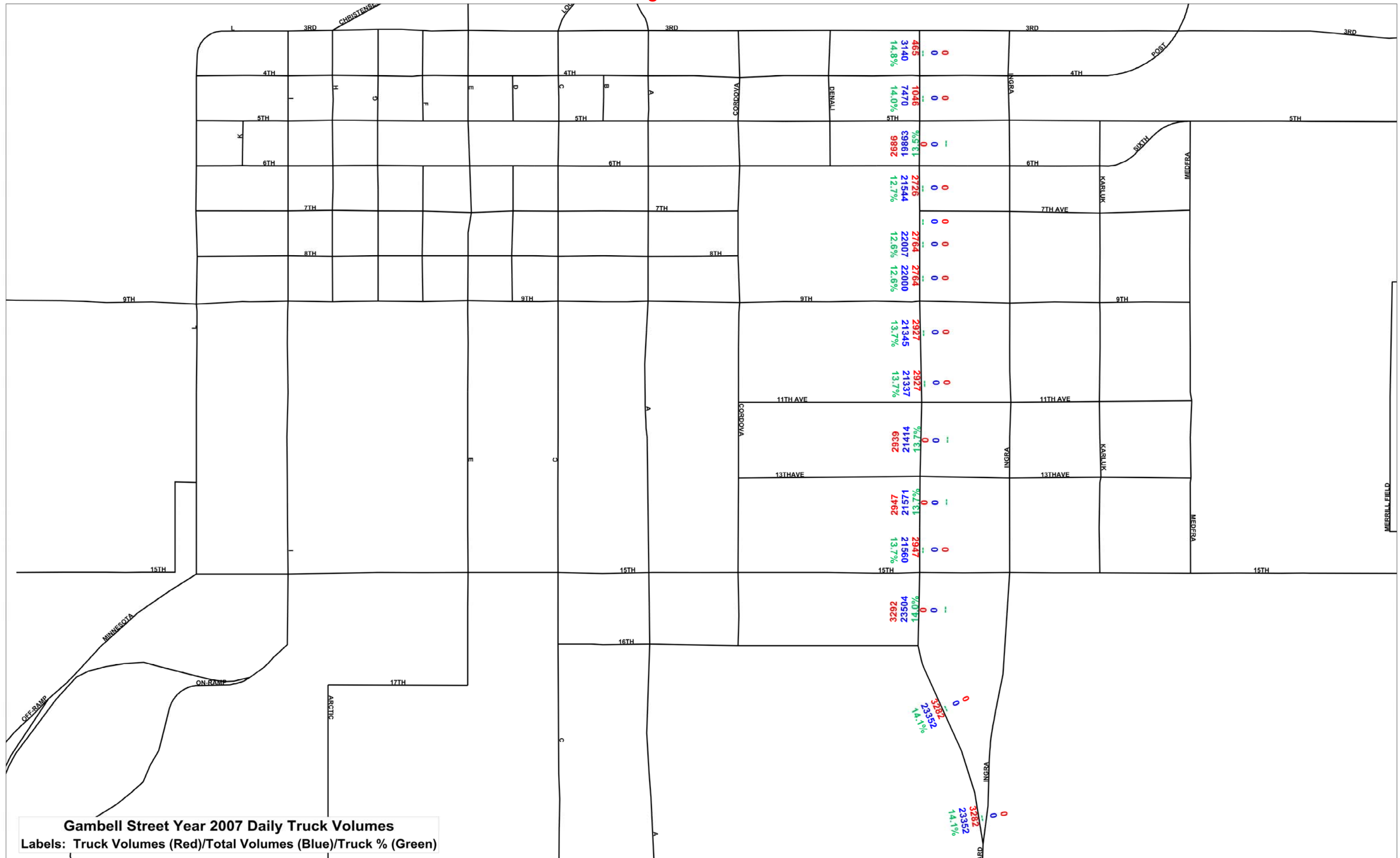




Gambell Street Year 2035 Daily - No Build (4 lanes) vs. Base (3 lanes)
 — No Build (4 lanes) < Base (3 lanes)
 — No Build (4 lanes) > Base (3 lanes)
 Labels: No Build Alt Vol (Black)/Base Alt Vol (Blue)/Diff Vol (Red)

22757
 22739
 -18
 A 0
 0 0
 0 0
 A

Attachment B - 2007, 2025, and 2035 Truck Volumes and Percentages



Gambell Street Year 2007 Daily Truck Volumes
 Labels: Truck Volumes (Red)/Total Volumes (Blue)/Truck % (Green)

