



A Technology and Service Company.

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## MuniRoute™

### Heavy Truck Traffic Congestion Prevention and Real-Time Mitigation Using Optimal Freight Routing

Industrial development, ranging from retail distribution centers, new or expanded manufacturing operations, and heavy construction or drilling activities, often dramatically increases overweight/oversize freight traffic on state and municipal roads (county, cities, towns and villages) that are ill-equipped to handle such traffic. The specific characteristics of these routes, including limited capacity and features such as rail crossings, traffic lights and even school zones, often combine to create significant traffic congestion.

Traffic congestion has been a well-studied factor in increased fuel consumption as well as emissions. This is particularly true for diesel trucks carrying heavy loads. Reduction in truck idle times has long been a target of the EPA as well as NYS Department of Conservation as diesel trucks produce significantly more Particulate Matter, a known carcinogen, and Nitrous Oxide than gasoline-burning passenger vehicles. With the potential for hundreds of minutes of truck idling times, air quality in the communities where the truck traffic is concentrated can be expected to deteriorate rapidly.

ARMA International, LLC (ARMA) has created a solution that mitigates this problem with our unique software, **MuniRoute™**, specifically designed to generate safe, energy-efficient optimal route mapping options to freight carriers. **MuniRoute™** provides real cost benefits to freight operators as well as protecting the livability of the communities where the traffic occurs and the environment, based on these key components:

1. Complete datasets that encompass factors that may negatively affect the free flow of freight traffic, including roadway characteristics, local impediments to free flow of traffic and route restrictions such as overhead clearances or weight restrictions.
2. Multiple route options, ranked by criteria including least fuel consumption or fastest route.
3. Route planning to minimize and manage factors associated with increased congestion, reducing time spent idling in traffic and the associated reduction in carbon emissions.

The resulting “smart” tool is based on the integration of interactive, flexible, full-featured GIS-based mapping and sophisticated data-driven decision-making functionality that provides:

- Identification of best-case primary routes **prior** to freight travel that allow freight operators to effectively plan route options to:
  - Reduce potential for congestion and the resulting carbon emissions from time spent idling.
  - Protect the infrastructure and livability of the communities through which the traffic passes
  - Reduce costs to the freight carriers through improved fuel economy and time savings
- Significant value for a wide range of needs, including municipal and transportation planning, freight permitting.
- Designation of **safe, legal** alternate routes based on selected criteria and the included parameters, such as vehicle size and weight.
- Allow logistics personnel to effectively manage the flow of convoy-type freight traffic through better route management during ongoing operations.
- Avoid congestion **as it occurs** with pre-identified alternate routing options and decision-making tools that aid selection of the best routes based on known causes of congestion and other selected criteria.

Not only a routing tool, **MuniRoute™** employs a holistic approach to the problem of heavy and wide truck loads and local traffic and congestion. As such, ARMA will also offer significant services to municipalities, including planning and highway departments, including:

- Improved ability to set designated truck routes
- Information to improve the permitting process
- Potential for load balancing to reduce wear and tear on infrastructures
- Real-time congestion mitigation options for other related applications
- Training and technology development related to the project topics.
- Improved accessibility to local roadway data, including local height and weight restrictions, road geometry, condition assessments, and asset management, including subsurface infrastructure including water and sewer lines.