

Regulating Development Near Rail

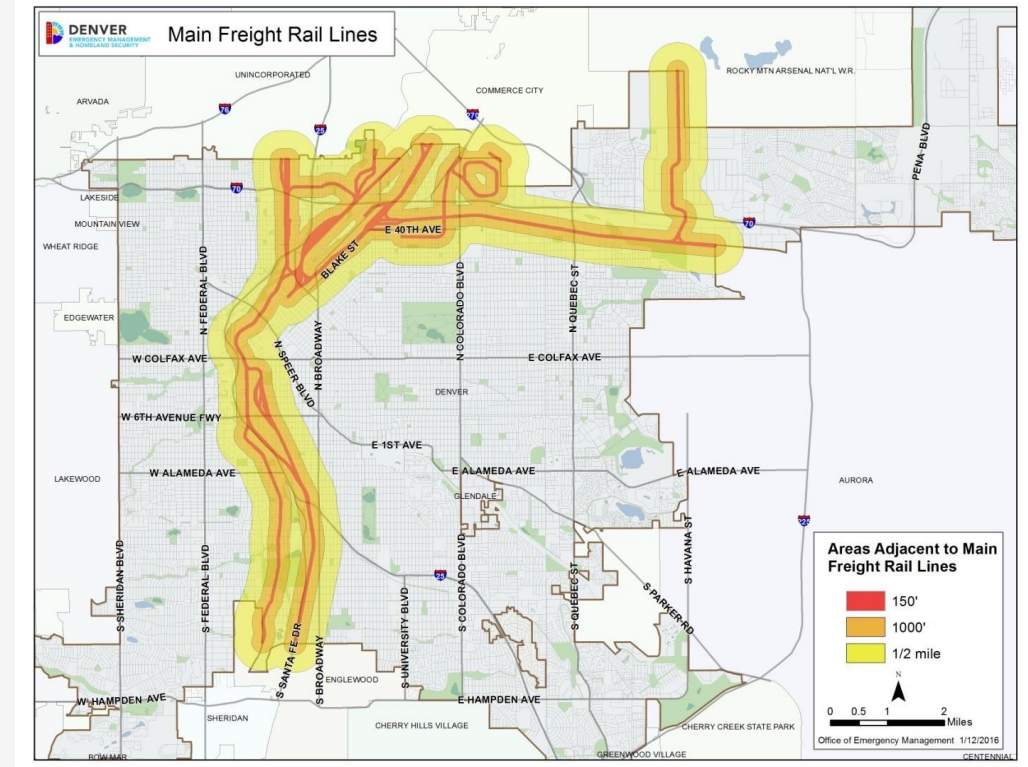
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Rail in Denver

Denver sits along rail lines important for the transport of petroleum products to refineries, ethanol for fuel blending and other hazardous material. Housing, commercial building, and public and private venues exist along three active heavy rail lines.

- There are 1,465 household units within 150' of rail; 22,163 within 1,000'; 75,030 within 1/2 mile radius;
- There are 4 public assembly locations within 100', 10 within 1,000', 58 within 1/2 mile. This includes Mile High Stadium, Coors Field, Pepsi Center, Elitch Gardens, etc.;
- Major redevelopments are planned near active rail lines including Fox Island, Sun Valley, Broncos Stadium, River Mile, and the National Western Complex.



Hazardous to Citizens

Mirroring national trends, Denver has seen a dramatic increase in rail shipments of flammable liquids, principally crude oil, related liquids, and ethanol. Denver's Office of Emergency Management and Homeland Security has reported:

- Up to over 80,000 hazmat rail car shipments per year through Denver.
- Up to over 200 hazmat rail car shipments on average per day through Denver.
- Flammable liquids account for over half of hazmat shipments through Denver by rail.



DOT projections, crude or ethanol -carrying train mainline derailments, 2015-2034

DOT projects 278 mainline derailments of crude oil or ethanol -carrying trains (*not including derailments of other hazmat, other derailments or other rail hazmat incidents*), including:

- 93 (33%) in densely populated areas;
- 85 (30.4%) with at least 1 carload of released flammable liquid igniting and causing fire;
- 12 (13%) with at least 230,000 gallons of released flammable liquid (7-8 tank car loads) and large fires;
- 2 derailments projected to be high consequence events (range estimate 1-5).

Final Regulatory Impact Analysis [Docket No. PHMSA-2012-0082] (HM-251) High-Hazard Flammable Trains Rule.

Heavy Rail Incidents in Denver 1996-2015

There were 320 heavy rail incidents in Denver during this 20 -year period, more than any other county in Colorado. Of these:

- 216 incidents were derailments;
- 26 were collisions;
- 213 were human –caused; and
- 14 were caused by equipment.

(Federal Railroad Administration, Office of Safety Analysis 2016).

Responsibility to Protect

1

FEMA Comprehensive Preparedness Guide, November 2010, 1st Sentence of 1st Chapter:

“The elected and appointed leaders in each jurisdiction are responsible for ensuring that necessary and appropriate actions are taken to protect people and property from any threat or hazard”.

2

The **2019 Colorado Local Emergency Planning Committee Annual Conference** was hosted by Colorado Division of Homeland Security and Emergency Response. An attorney who counsels Colorado’s Emergency Planning Committee advised attendees that, in a post-Hurricane Katrina environment, elected officials are legally responsible to ensure actions are taken to protect people and property and he directed attendees to review the above-referenced **FEMA Guide**.

Models for Regulating Development Near Rail to Mitigate Risks

- 1 Federation of Canadian Municipalities/Railway Association of Canada “Guidelines for New Development in Proximity to Railway Operations” (FCM/RAC). Developed through comprehensive project involving municipalities, railroads and consultant experts.
- 2 Calgary Baseline Risk Assessment, “Development next to Freight Rail Corridors Policy & Implementation Guide.” It was developed in collaboration with stakeholders including rail companies, developers and community associations and with public information sessions.

Emergency Risk Management: Mitigate – Prepare – Respond – Recover

FCM/RAC Guidelines

Standard Mitigation for New Residential Development Proximate to Main Line Railway

- 30 meter setback for main lines from rail property line to residential building (a distance longer than most rail freight cars);
- 1.83 meter chain link security fence at rail property line (trespass mitigation);
- 2.5 meter earthen berm between rail line and building;
- 3 meter high acoustical fence atop earthen berm;
- Suggested by Railway Association of Canada members.

Alternate Residential Setbacks for Different Types of Rail Lines

- Freight Rail Yard: 300 meters;
- Principle & Secondary Branch Lines & Spur Lines: 15 meters.

Adopted By:

- Local governments across Canada and within the Montreal region by the Montreal Agglomeration Council;
- Recommended as standard mitigation for City of Toronto – also provides for alternative measures.

City of Calgary – Based on Risk Management Principles and Guidelines

Risk Analysis Based on Key Information (similar to US DOT rail analysis)

- Rail type, length and locations, type of rail crossing, track geometry and elevation;
- Railway train speeds and location of crossings, switches and other infra;
- Daily train traffic data past 5 years (minimum) for analysis of average and upper percentile traffic volume;
- Type and apportionment of freight by Hazmat Class (with non-disclosure considerations);
- Rail accident statistics for study area from Transportation Safety Board of Canada;
- Trespassing reports last 10 years;
- Zoning, topography and geology;
- Risk factors: Derailment fatalities, train speed, derailment size, elevation differences;
- Major Industrial Accidents Council of Canada (MIACC) Risk Criteria for Public Fatality (≤ 1 or $\leq 0.3 \times 10^{-6}$ chance).

Regulates New Maximum Building & Sensitive Use Widths facing Rail

- Proximity (Inside the Rail Proximity Envelope 30m X 7m for Safety & 30m X 64m for Noise);
- Type of use (High Density Residential, Commercial and Campus/Sensitive Uses);
- Regulates building and use widths in each railway segment so as to meet MIACC risk criteria;
- Alternate compliance route – Site Specific Risk Assessment/3rd Party Review.

Development Next to Freight Rail Corridors Policy – 3 components

- Policy – adopted by City Council
- Implementation Guide
- [Interactive Map](#)

Next Steps



Provide CPD (& other city agencies) Authority to Regulate Developments Close to Rail.



Establish interim regulations

- 30 meter setback from rail property line (which uses?).
- 1.83 meter chain link security fence, with consideration of emergency access needs.



Launch 12 Month Process to Review Canadian and any US mitigation models and Develop Policy & Procedures.