

# Vulnerable Road User Safety Assessments (in SHSP)



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A Vulnerable Road User Safety Assessment is

1) an **assessment** of the Safety Performance of a State with respect to VRUs, and

2) the **(safe system) plan** of the State to Improve the Safety of VRUs

# Background

- 38,824 lives lost in Crashes in 2020
- Highest number of deaths since 2007 (2021 figures are higher again)
- Bicycle fatalities were up 9.2% in 2020 (from 859 to 938)
  - 5% expected increase from 2020 to 2021 (14% in 2 years)
- Pedestrian fatalities were up 3.9% in 2020 (from 6,272 to 6,516)
  - 13% expected increase from 2020 to 2021 (17% in 2 years)
- The percentage of the road toll that is VRUs is increasing in many developed countries.
- Core approach specified to address this issue is Safe System

# Key Considerations

- **Prioritising VRUs (A2M) Road Safety in all Investments and Projects** – and adoption of safe system approach (which requires a paradigm shift)
- **Safe System Approach** requires a refocus of transportation system design and operation on anticipated human mistakes and lessening impact forces

Also to consider:

- **Equity** – Under-served communities, including racial equity, access for elderly people and people with disabilities
- **Climate Change and Sustainability** – reducing net greenhouse gas pollution. Will lead to more walking and cycling

# Safe System Approach

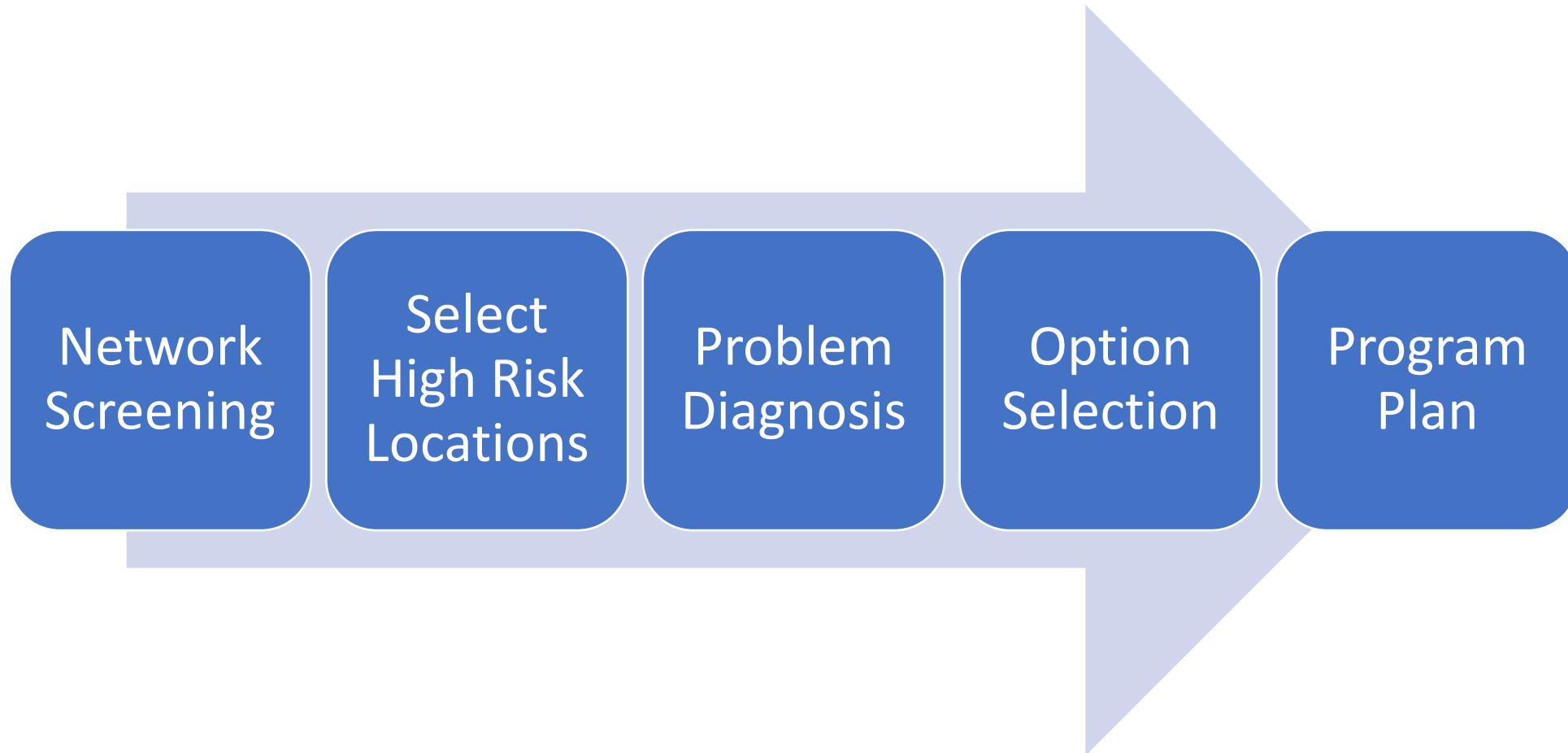


Speed affects the severity of all crashes. Even when speed doesn't cause the crash, it's what will most likely determine whether anyone is killed, injured, or walks away unharmed.

# Requirements

- Each State is complete an initial VRU safety assessment by ideally Nov 15 2022, as part of the State Strategic Highway Safety Plan (SHSP) – or after that date if the State does not plan to submit a updated SHSP on 15 Nov
- VRU Safety Assessment (SA) will include:
  - (Systemic) Safety Assessment (Quantitative Analysis)
  - New Strategies to address VRU risk
  - Program of Projects to address VRU risk
- The VRU SA needs to be updated with each subsequent SHSP update
- That States where great than 15% of their fatalities as VRU need to commit that percentage of their SHSP to address VRU safety.

# VRU Assessment and Plan Process



# Screening and Identification of High Risk Areas

- **High Injury Network (HIN) (Reactive) Analysis** – Mapping of corridors where high numbers of people have been killed and severely injured. Method often used by Vision Zero Cities
- **Predictive Safety Analysis** – Identifies using SPFs (often from Highway Safety Manual) roadway sites with the greatest potential for improvement.
- **Systemic Safety Analysis (Risk Based Models)** – use crash and roadway data in combination to identify high-risk roadway features that correlate with particular crash types
- Predictive approaches (the last 2) also allow the benefits of various improvements to be quantified



# Presentation on Current Methods

- Wes Kumfer – Systemic Predictive Analysis of Pedestrian Crashes for Montgomery County’s Vision Zero Program (+ Seattle work)
- Darren Torbic – NCHRP 17/84 - Pedestrian and Bicycle Safety Performance Functions for the Highway Safety Manual + USRAP methods

# Discussion Points

- Data Requirements – how available is data – crashes/exposure
- Surrogate measures for pedestrian and bicycle exposure – Transit and Land-use.
- Preferred Approach for network screening and identification of high risk sites.

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### 3. Urban signalised with vertical approach deflections



# Datasets (Who can present??)

- State Crash Databases
- Land-use and Transit spatial datasets
- Etc...
- EJScreen – Environmental Justice and Screening Mapping Tool (EPA)
- FHWA – HEPGIS Maps – Socioeconomic and Equity Analysis (FHWA)
- Transportation Disadvantaged Census Tracts ([argis.com](http://argis.com)) (USDOT)
- The Climate and Economic Justice Screening Tool (CEJIS)
- Social Vulnerability Index (CDC)

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