



# **USMCA Tijuana River Watershed**

## **Overview of the Alternatives Evaluation Process**

Photo: Nick Statom & Stephen Holleman



# USMCA Tijuana River Watershed Investments

EPA analyzed 13 alternatives on their:

- Ability to reduce environmental and human health impacts from transboundary flows
- Feasibility, cost (capital and O&M)

EPA needed a way to **incorporate community stakeholder priorities** into the evaluation process.

EPA decided to use the Augmented Alternatives Analysis process to evaluate investments that provide **social, environmental, and stewardship of public resources**.

The following slides provide an overview of the evaluation process.

# Step 1: What are the USMCA Project investment goals?

**Public Health &  
Community  
Livability**

**Stewardship of  
Public  
Resources**

**Ecological  
Protection**

**System  
Resiliency**

These four goals articulate what the investments hope to achieve.



**Public  
Health &  
Community  
Livability**

**Stewardship  
of Public  
Resources**

**Ecological  
Protection**

**System  
Resiliency**

# Step 1: Identify USMCA Investment Goals

- The investment goals were based on the initial criteria list presented to EPECG at the Oct 16, 2020 meeting.
- The goals were then refined with information gathered from:
  - Feasibility Assessments
  - EPECG Members
  - Public Meeting Discussions
  - Technical Experts
  - Previous Studies/Research
- Once the goals were refined, EPA built out those goals to measure and evaluate the alternatives.

## Step 2: What is the importance of each goal relative to the others?

**Public Health &  
Community Livability**

**Stewardship of  
Public Resources**

**Ecological  
Protection**

**System  
Resiliency**



Public Health &  
Community  
Livability

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## Step 2: Determine the Importance of Each Goal Relative to the Others

- From EPECG Members and Public Meeting discussions, EPA knew protect **Public Health & Community Livability** was front and center.
- Next, EPA heard an emphasis on the need to address **Stewardship of Public Resources** that pollution prevents or hinders in the Tijuana River Valley.
- Then EPA heard that **Ecological Protection** and **System Resiliency** were equally important to one another.
- Once EPA had solidified and identified the relative importance of the goals, they were able to use a process that detailed how they would achieve each goal.

## **Step 3: How will each investment be evaluated against the goals?**



**Public Health &  
Community  
Livability**

**Stewardship of  
Public  
Resources**

**Ecological  
Protection**

**System  
Resiliency**

**EPA used a systematic and replicable process that goes from big picture to measurable metrics.**



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## Step 3: Refine Big Picture Goals to Measurable Impacts

- Goals are big picture and therefore difficult to measure how an alternative performs relative to the goal.
- For example, there may be a wide variety of ways to measure how a project might impact Ecological Protection.
- Due to this variety, there needs to be **a systematic and replicable process** that anyone conducting the evaluation could come to the **same conclusion**.
- On the next slide EPA shows how they went from goals to measurable metrics.

# Example of the Goal to Metric Process



The diagram is set against a dark teal background. On the left, there is a large blue arrow pointing to the right, with the word 'Goal' written inside it. Below the arrow is a blue circle containing the text 'Public Health & Community Livability'. To the right of these elements, there is a block of white text explaining the concept of goals.

**Goal**

**Public Health &  
Community  
Livability**

Goals are big picture and articulate what the investments hope to achieve.

# Example of the Goal to Metric Process

**Goal**

**Public Health &  
Community  
Livability**

**Objective**

Improve  
conditions  
along the  
Tijuana River

Objectives are a *specific, measurable* outcome that contributes to the achievement of the goal.

They are specific, measurable, assignable, realistic, and time-based.

# Example of the Goal to Metric Process

**Goal**

**Public Health &  
Community  
Livability**

**Objective**

Improve  
conditions  
along the  
Tijuana River

**Criteria**

Reduce days of  
transboundary  
river flows

Criteria evaluate an alternative and reveal an alternative's strengths and weaknesses.

They demonstrate how an alternative will perform relative to goal and objective.

# Example of the Goal to Metric Process

**Goal**

**Public Health &  
Community  
Livability**

**Objective**

Improve  
conditions  
along the  
Tijuana River

**Criteria**

Reduce days of  
transboundary  
river flows

**Metric**

Percent change  
in days of  
transboundary  
river flows  
(annual)

Metrics  
measure  
performance of  
each  
alternative.

They can be  
quantitative or  
qualitative.

# Each goal may have multiple objectives, criteria, and metrics

**Public Health &  
Community  
Livability**

**Stewardship of  
Public  
Resources**

**Ecological  
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**System  
Resiliency**

In the next slide, you will see how all four goals were built out into 10 objectives, 15 criteria, and 15 different measurable metrics.

USMCA Tijuana River Watershed Goals Matrix			
Goals	Objectives	Criteria	Metrics
Public Health & Community Livability	1.1 Improve conditions along the Tijuana River	1.1.1 Reduce days of transboundary river flows	1.1.1a % change in days of transboundary river flows
		1.1.2 Reduce nuisance conditions within and adjacent to Tijuana River Valley in U.S.	1.1.2a Net impact to visual, odor, disease vector, noise, traffic, and flooding/access issues
	1.2 Improve water quality at U.S. beaches	1.2.1 Reduce sewage discharged to ocean via Tijuana River	1.2.1a % change in total volume of untreated sewage (annual)
		1.2.2 Reduce sewage discharged to ocean from SAB Creek	1.2.2a % change in total volume of untreated sewage (annual)
	1.3 Protect and improve conditions for impacted constituencies	1.3.1 Reduce siting and O&M requirements for border security personnel	1.3.1a Net impact to border security operations
Stewardship of Public Resources	2.1 Achieve a timely Intervention	2.1.1 Pursue accelerated time to implement project	2.1.1a. NEPA efficiency scored based on capital cost of alternatives not expected to require a NEPA EIS/ROD
	2.2 Increase funding to U.S. side solutions	2.2.1 Bolster U.S. oversight of construction	2.2.1a % of funding on U.S. side projects
	2.3 Reduce economic impact to affected communities	2.3.1 Reduce tourist season beach impacts	2.3.1a % change in days of contaminated beaches during tourist season
Ecological Protection	3.1 Reduce impacts to habitat and wildlife	3.1.1 Reduce sediment deposition in Tijuana River and Estuary	3.1.1a Change in amount of sediment reaching Tijuana River Estuary
		3.1.2 Reduce trash in estuary and marine debris	3.1.2a Change in amount of trash in Tijuana River
		3.1.3 Reduce ecological pollutants in aquatic habitats (e.g., Tijuana River, Tijuana Estuary, and Pacific Ocean)	3.1.3a Net change in pollutant loadings in the Tijuana River or in discharges to Pacific Ocean
		3.1.4 Avoid reduction of protected or special-status species habitat	3.1.4a Number of endangered, threatened, or special-status species in proximity to construction
System Resiliency	4.1 Plan for long-term treatment needs	4.1.1 Account for future population growth and urbanization	4.1.1a MGD to treat raw sewage and/or reuse of water
	4.2 Prepare for and seek to mitigate impacts of climate change	4.2.1 Reduce energy use	4.2.1a Net change in energy use
	4.3 Improve system reliability	4.3.1 Retain an adequate and prepared workforce	4.3.1a Number of new licensed operators required



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# USMCA Alternative Evaluation

- EPA used the matrix in the previous slide to **evaluate and score** each alternative's ability to meet the four USMCA Investment Goals.
- The score was then divided by the alternative's 40-year lifecycle cost (capital plus 40 years of operation and maintenance costs) to assess the alternative's **cost effectiveness**.