

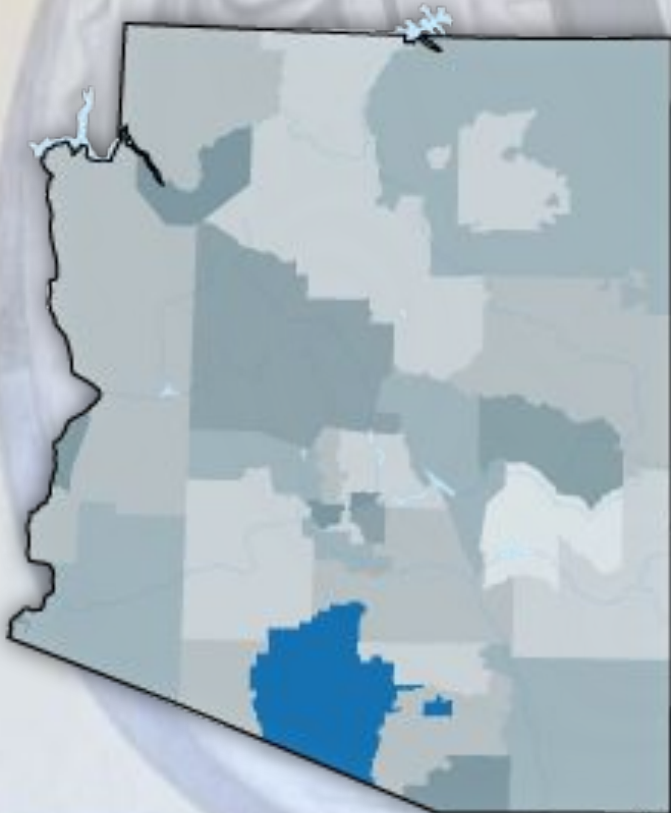
# **Bicycle and Pedestrian Safety Strategies in Tribal Communities**

## **2023 Arizona Tribal Transportation Safety & Injury Prevention Summit**

**Vulnerable Road Users Plenary Session  
Desert Willow Conference Center  
August 9, 2023**



# Session Overview



- **About the Tohono O’odham Nation**
  - **Surveillance (Crash Data)**
- **ADOT’s Safe Routes to School (SRTS) Program & Planning Assistance Programs**
- **2011 Baboquivari Middle School SRTS Route/Travel Plan & the final Plan’s Recommendations (5Es)**
  - **SR 86 HaWK Beacon History**

Photo credit: *First Things First*



# About the Tohono O'odham Nation



# About the Tohono O'odham Nation

- Population of 35,636 people (TON Enrollment)
- Comparable in size to the state of Connecticut
- 11 Districts; including the Sells District, which was this project's location.

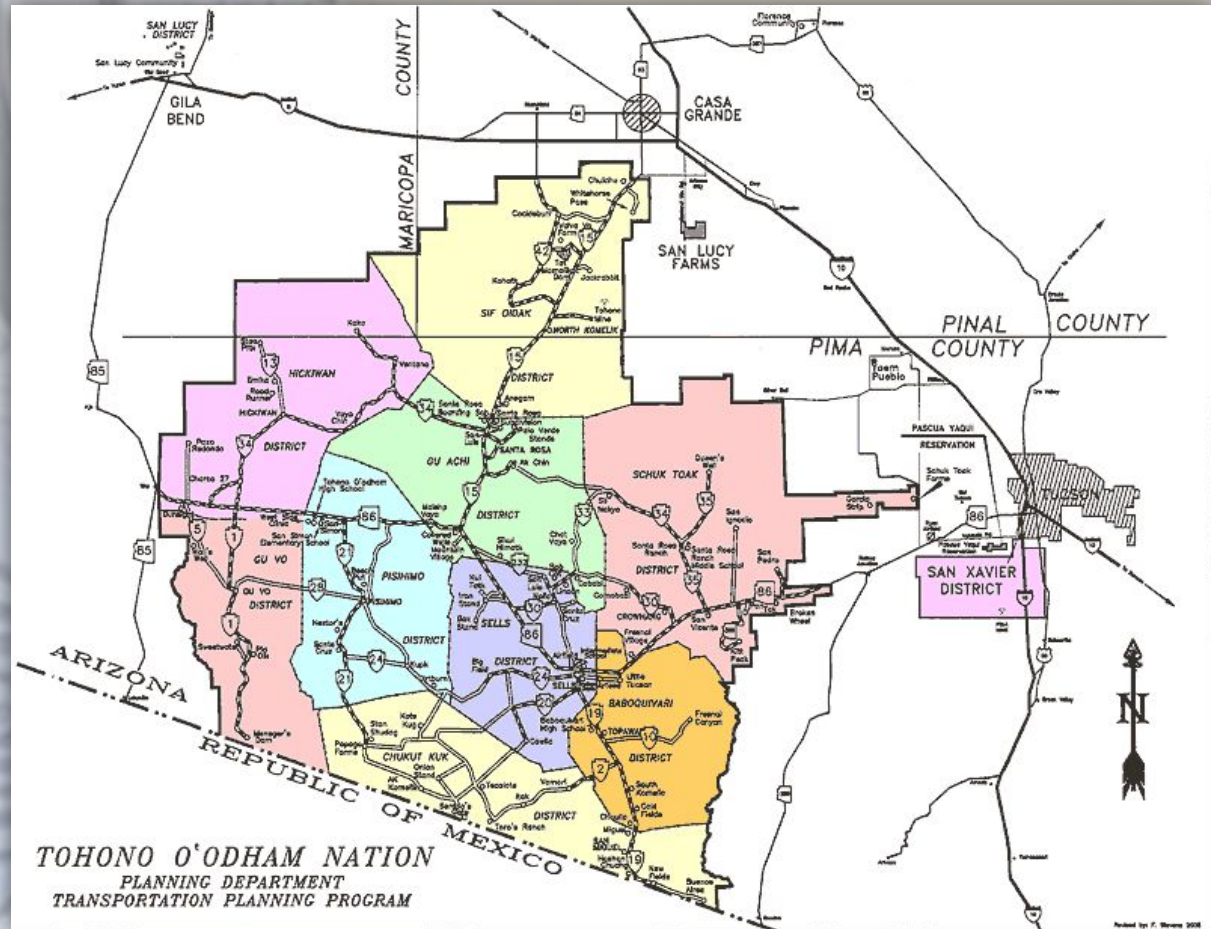


Photo Credit:

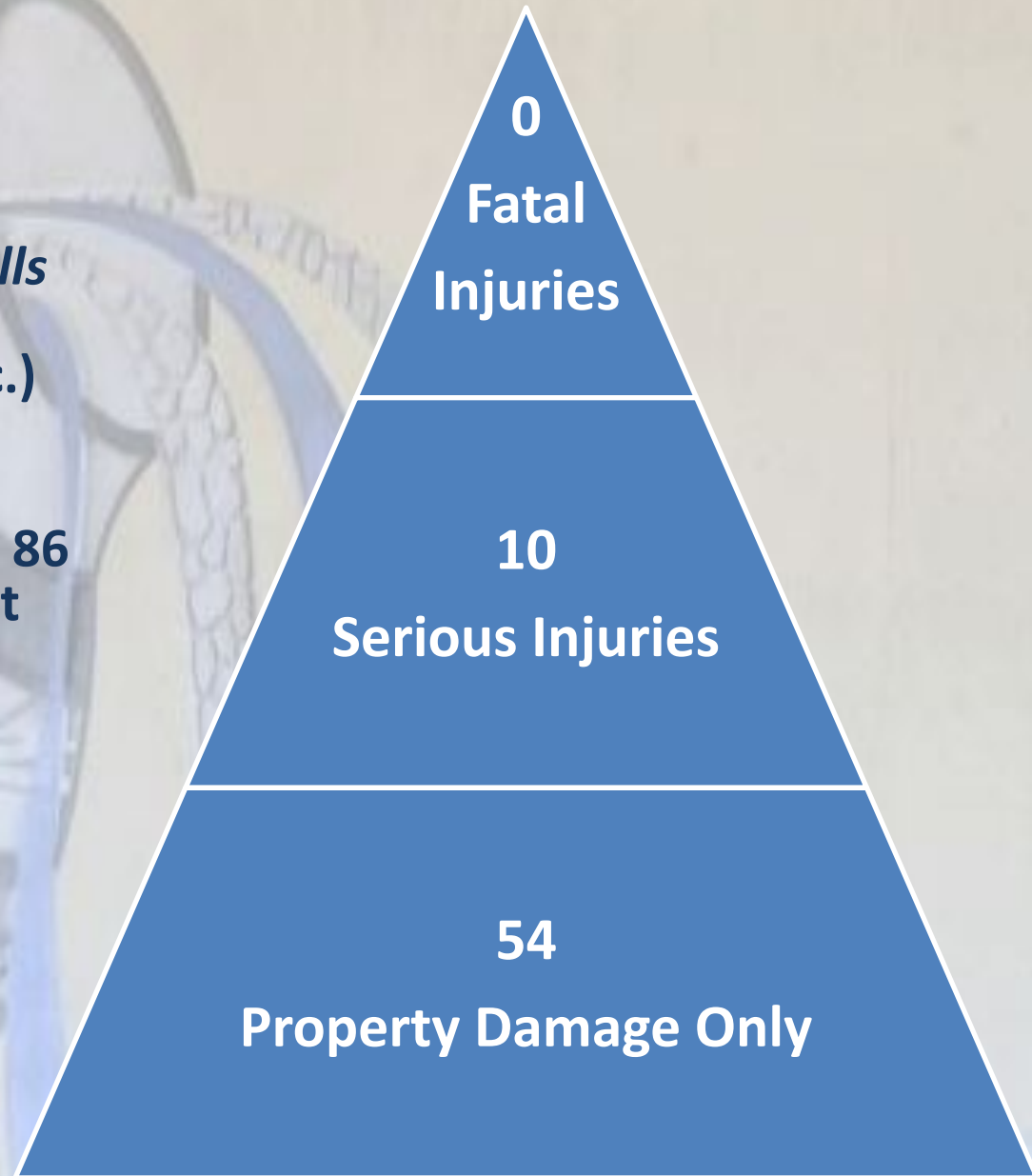


# Surveillance (Crash Data)



# Injury Pyramid

- Data Source: *2010 SR 86 Sells Pedestrian Crossing Study* (Kittleson & Associates, Inc.)
- Data Gathered: 1/1/2004 - 12/31/2008 for crashes occurring on SR 86 or at SR 86 intersections from Milepost 114 to 117
- Total Crashes: 64
- Total Fatalities: 0
- Total Serious Injuries: 10
- Total Property Damage: 54
- 13 crashes/year average reported to ADOT on this 3-mile SR 86 segment
- NO bike or ped crashes!



# **ADOT's Safe Routes to School (SRTS) Program & Planning Assistance Programs**



# Federal SRTS Program

Created in 2005 by Congress to address the growing epidemic of *childhood obesity and diabetes*.

1. To enable and encourage children - *including those with disabilities* - to walk and bicycle to school;
2. To make bicycling and walking to school *a safer and more appealing* transportation alternative; thus, *encouraging a healthy and active lifestyle* from an early age.
3. To facilitate *project planning, development and implementation* that *improves safety* while *reducing traffic, fuel consumption and air pollution* near schools.





# ADOT's SRTS Program

*Initiated  
in the  
fall of  
2006.*



PAP/MYPAP/ TPAP Community	PAP/MYPAP/ TPAP Grant Cycle	Year	Funded Project Type	SRTS Grant Funding Cycle	Amount
Clifton PAP	Cycle 2	2008			
Yavapai-Apache Nation PAP	Cycle 2	2008	INF	Cycle 3	\$15,980
Cottonwood PAP	Cycle 3	2009	NI	Cycle 3	\$45,000
			NI	Cycle 4	\$45,000
			NI	Cycle 6	\$120,000
Douglas PAP	Cycle 3	2009	INF	Cycle 4	\$300,000
Globe PAP	Cycle 3	2009			
Patagonia PAP	Cycle 3	2009			
Phoenix PAP (Wilson)	Cycle 3	2009	INF	Cycle 4	\$298,794
Eagar PAP	Cycle 4	2010	INF	Cycle 6	\$395,600
Kingman PAP	Cycle 4	2010			
Show Low MYPAP	Cycle 4	2010			
Springerville MYPAP	Cycle 4	2010	NI	Cycle 3	\$12,046
			NI	Cycle 4	\$14,196
			INF	Cycle 5	\$399,728
Surprise MYPAP	Cycle 4	2010			
Tohono-O'odham Nation MYPAP	Cycle 4	2010	NI	Cycle 4	\$2,082
Yuma Proving Ground MYPAP	Cycle 4	2010	INF	Cycle 6	\$104,904
Mesa PAP- Cycle 5	Cycle 5/6	2011	INF	Cycle 6	104,900
			NI	Cycle 6	44,800
Rimrock PAP- Cycle 5	Cycle 5/6	2011			
Sacaton PAP- Cycle 5	Cycle 5/6	2011			
Wenden- Cycle 5	Cycle 5/6	2011			
Clarkdale- Cycle 6	Cycle 5/6	2011	INF	Cycle 3	\$150,000
Phoenix-Cycle 6 (EAGLE)	Cycle 5/6	2011	NI	Cycle 6	\$120,000
Sedona-Cycle 6	Cycle 5/6	2011	INF	Cycle 6	\$244,000
Tucson-Cycle 6 (Banks)	Cycle 5/6	2011			
Kayenta-Cycle 6	Cycle 5/6	2011			
Hualapai	Cycle 7	2012			
Quartzsite	Cycle 7	2012	INF	Cycle 6	\$396,100
Wellton	Cycle 7	2012			

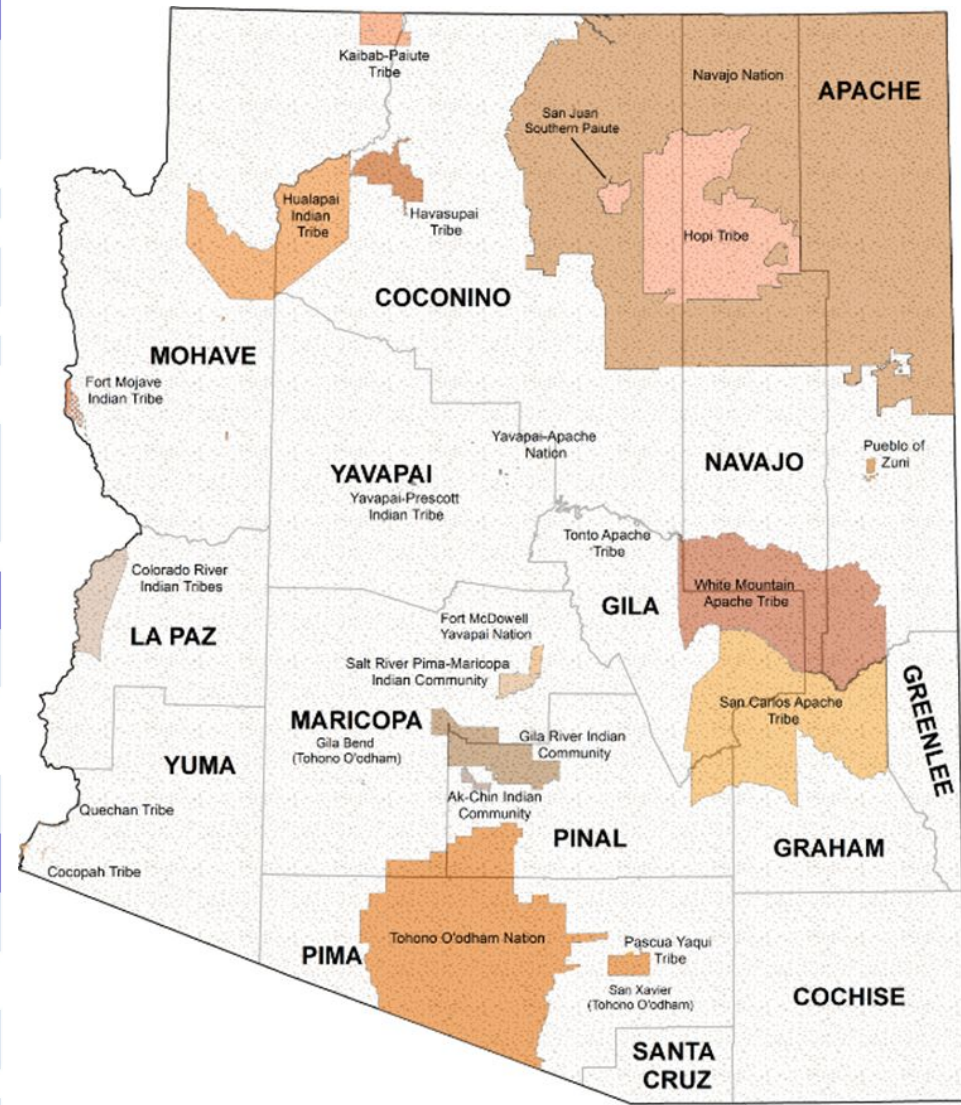


Photo credit: Inter Tribal Council of Arizona

# TON's Mid-Year Planning Assistance Program



# TON's Mid-Year Planning Assistance Program





**2011**  
**Baboquivari Middle School**  
**SRTS Route/Travel Plan**





Baboquivari Middle School  
Safe Routes to School Program  
School Route Travel Plan

Prepared by:  
Nichols Consulting Engineers, Chtd.



# BMS SRTS Route/Travel Plan Recommendations (4 of the 5Es)

## Education

Walking School Bus, Bike Train, parent & community training & having interested SRTS Team & community members become LCIs

## Encouragement

Hosting annual International Walk & Bike to School Day events & partnership development with local health & wellness organizations; e.g., TOCA, IHS, HOPP & Y.O.U.T.H.

## Enforcement

Enforcement of, and education about, the newly posted speed limit to ensure compliance + support for bike-ped events + School Safety Patrol School zone enforcement and support of Crossing Guards

## Evaluation

Ongoing information-gathering to assess and/or improve SRTS Program design; e.g., Student Travel Tally Sheets, Parent Surveys, Kittleson & Associates, Inc. speed study & crash data



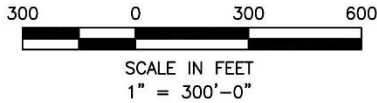
# 5th E - Engineering



SCHOOL VICINITY IMPROVEMENTS

**NOTES:**

1. ADDITIONAL BIKE RACKS TO BE INSTALLED ON SITE.
2. PEDESTRIAN GATE TO BE MODIFIED TO ALLOW BICYCLE CROSSING.



LEGEND	
FLASHING SCHOOL ZONE SIGN	
CROSSWALK	
SIGN PLACEMENT	①

		BABOQUIVARI MIDDLE SCHOOL P.O. BOX 248 SELLS, AZ 85634		FIGURE <b>1</b>
		DRAWN CKC	JOB NUMBER A170.24.10.6	APPROVED





# Success Story: TON League Cycling Instructors



# SR 86 HaWK Light History

## Sells Community Resolution

(Approving The Hawk Pedestrian Flasher for Sells Community)

SC-42-10

- Whereas, Antonio Benavides of the Tohono O'odham Nations Planning Department did attend the Sells Community meeting, held on Saturday, March 27, 2010, and,
- Whereas, Antonio did his presentation on Safe Routes to School; with concerns to childhood obesity and diabetes is widespread throughout the Tohono O'odham Nation and
- Whereas, there is serious concern for the well being and safety for the students, who must cross SR86 to arrive at the Indian Oasis Baboquivari Unified School District's Elementary and Middle School and,
- Whereas, the community is in support for the installation of crosswalks and the Hawk Pedestrian Flasher on SR86 at Spencer Drive (PO King) and SR86 and the Middle School and,
- Whereas, the Community and multiple agencies within the Nation have worked to form a Safe Routes to School Program in hopes of addressing both the health issues and the safety concerns for students of Indian Oasis Baboquivari Unified School District.

**NOW THEREFORE BE IT RESOLVED THAT,** the Sells Community deems it necessary and approves the installation of crosswalks for both the Indian Oasis Baboquivari Unified School District's Elementary School and Middle School in order to ensure the safety and well-being of our community's youth.

### CERTIFICATION

The foregoing resolution was duly adopted by the Sells Community at a regular scheduled Community meeting held on the 27<sup>th</sup> day of March, the year 2010 at which a vote of 17 FOR, 0 AGAINST, and 0 NOT VOTING.

Motion by: Nick Kuthi-Lee  
Second by: Catherine Whitman

*Maria Chapman*  
Sells Community Chairwoman  
*Margalene Piller*  
Sells Community Secretary

## HAWK Beacon Signals:

### Drivers

...will see this

...will do this



Proceed with Caution



Flashing

Slow Down  
(Pedestrian has activated the push button)



Prepare to Stop



STOP!  
(Pedestrian in Crosswalk)



Flashing

STOP!  
Proceed with Caution if Clear



Proceed if Clear

### Pedestrians

...will see this

...will do this



Push the Button to Cross



Wait



Continue to Wait



Start Crossing



Flashing

Continue Crossing  
(Countdown Signal)



Push the Button to Cross



# SR 86 HaWK Light Handout



## Safety Effectiveness of the HAWK or Pedestrian Hybrid Beacon

KAY FITZPATRICK

*The author is Senior Research Engineer, Texas Transportation Institute, Texas A&M University, College Station, and chair of the TRB Operational Effects of Geometrics Committee.*

The number of people who choose to walk or to ride a bicycle instead of driving has increased in recent years, because of the cost of transportation, the desire for healthier lifestyles, and for other reasons. Pedestrians and bicyclists, however, encounter serious risks—a large number are killed in traffic accidents every year in the United States.

### Problem

Many roadway crossing treatments are available to address concerns about the safety of pedestrians (1), but only a few are appropriate for high-speed conditions or for wide crossings. In the late 1990s, Richard Nassi, then transportation administrator for the City of Tucson, Arizona, developed the High-Intensity Activated Crosswalk, or HAWK, pedestrian beacon; the 2009 *Manual on Uniform Traffic Control Devices* (MUTCD) calls the device the pedestrian hybrid beacon (2).

The HAWK is designed to assist in pedestrian crossings, especially at major arterials with minor street intersections (3). The HAWK stops vehicles so that pedestrians can cross the roadway and then permits the drivers to proceed as soon as the pedestrians have passed. Because signal control on a side

street could encourage unwanted additional traffic through the neighborhood, the HAWK was designed with stop control on the side streets.

At a HAWK crossing, drivers receive multiple cues for the possible presence of a pedestrian. The cues include

- ◆ A unique beacon configuration—two red lenses over a single yellow lens;
- ◆ High-visibility crosswalk markings, in a ladder style distinct from two transverse white lines;
- ◆ A stop bar approximately 50 ft from the crosswalk;
- ◆ Solid line lines, 8 in. wide, between through-travel lanes; and
- ◆ Signs—sometimes illuminated—that read “Pedestrian Crossing” or “School Warning.”

When activated, the HAWK provides a red indication requiring drivers to stop for pedestrians crossing the major roadway. In Tucson, the HAWKs reduce pedestrian waiting time with “hot button” or instantaneous service. The HAWK can be designed to provide synchronization of signals on the arterial street.

Photo: Michael J. Green



Example of a HAWK treatment in Tucson, Arizona. [Note: The pedestrian is Richard Nassi, developer of the HAWK.]

TR NEWS 2010 04/15—JUNE 2012 15

Source: Fitzpatrick, Kay (May 1, 2012). "[Safety Effectiveness of the HAWK or Pedestrian Hybrid Beacon](#)" (PDF). Texas Transportation Institute. Retrieved April 15, 2022.

# SR 86 HaWK Light Cost

A photograph of a street light pole against a blue sky with scattered white clouds. The pole is dark green and has several components: a beacon light fixture at the top, a 'CROSSWALK STOP ON RED' sign, a pedestrian crossing sign, and a directional arrow sign. The background shows a clear sky and some distant trees and utility poles.

In 2012 - 2013, these beacons had a starting price of about \$150K; with the installation of power, they generally cost about \$200 - 250K.

# SR 86 HaWK Light Funding

The beacons were funded with a combination of Round 18 Transportation Enhancement funds and TAP/HSIP funds approved through PAG.



# SR 86 HaWK Light



# Final Wrap Up



*“As I walk, as I walk, the universe is walking with me.”*  
-- from the Diné rain dance ceremony

**In beauty may I walk  
All day long may I walk  
Through the returning seasons may I walk**

**Beautifully I will possess again  
Beautifully birds  
Beautifully joyful birds**

**On the trail marked with pollen may I walk  
With grasshoppers about my feet may I walk  
With dew about my feet may I walk  
With beauty may I walk  
With beauty before me may I walk  
With beauty behind me may I walk  
With beauty above me may I walk  
With beauty all around me may I walk**

**In old age, wandering on a trail of beauty, lively, may I walk  
In old age, wandering on a trail of beauty, living again, may I  
walk**

**It is finished in beauty  
It is finished in beauty**



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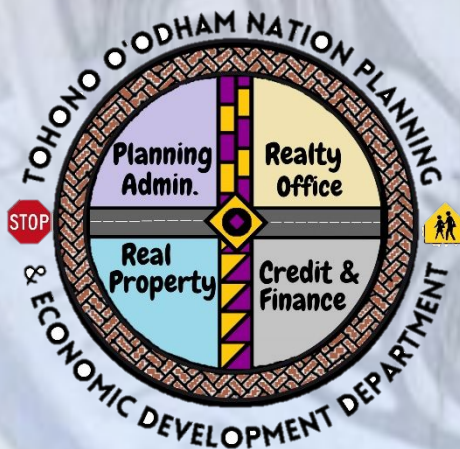
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