

STEM

Education and Outreach

ACTIVITY BOOK

m DEPARTMENT OF
TRANSPORTATION

Student Edition

UPDATED: FALL 2020



Word Search



What type of careers are a part of MnDOT? Circle each of the jobs listed below in the word search puzzle.

Words to find:

- | | | | |
|------------------|----------------|--------------------|-------------------|
| Accounting | Engineer | Laborer | Pilot |
| Architect | Forestry | Land Surveyor | Planner |
| Communications | Highway Helper | Landscape Designer | Safety Officer |
| Customer Service | Hydrologist | Mechanic | Signal Technician |
| Electrician | Graphic Artist | Photographer | Welder |

N V C R I M F B R E H P A R G O T O H P Y
 K R O W M N A I C I N H C E T L A N G I S
 R C M E R K G X R E C I F F O Y T E F A S
 O K M E N G I N E E R T D C I N A H C E M
 Y V U S H R S W R A M R Y N R E N N A L P
 E G N C O E E H I G H W A Y H E L P E R K
 V B I B F D U N K K A N O I B W O E J E X
 R D C L F L L Z B E L C S A K J T B C D T
 U M A G H E M H Y A L Q C M X C M I O G S
 S S T L P W J V B M D E Y O E Y V V M V I
 D L I G W N E O S X H R C T U R X B Y D T
 N O O M P T R I U Y T W I T E N O S R Z R
 A M N O K E T H D S J H G S R N T Y Q Q A
 L J S L R V X R E V C D R U Q I A I S C C
 M Y T Y A U O R E R L E H D B D C Z N Z I
 J W K G I L O K A N M J S X V E R I O G H
 C X Q W O F J S P O K I S H T U T N A B P
 Z A I G I F B V T P I L O T M X X K P N A
 Z O I L A N D S C A P E D E S I G N E R R
 D S U O G K U D F G H E T P G Y Y F J G G
 T Y E T A C H P Q W T K R E Y P K L E D W

📌 DID YOU KNOW?
 MnDOT employs **more than 5,000 people!** Check out the matching exercise on the next page to learn what people in each of these jobs do.

Matching Definitions



Who works at MnDOT? Match the job title with the job description in the two columns below.



- ___ Accounting
- ___ Architect
- ___ Communications
- ___ Customer Service
- ___ Electrician
- ___ Engineer
- ___ Forestry
- ___ Graphic Artist
- ___ Highway Helper
- ___ Hydrologist
- ___ Laborer
- ___ Land Surveyor
- ___ Landscape Designer
- ___ Mechanic
- ___ Photographer
- ___ Pilot
- ___ Planner
- ___ Safety Officer
- ___ Signal Technician
- ___ Welder

1. Works with plants and trees along highways and waterways
2. Maintains and builds MnDOT traffic signals
3. Does heavy manual labor, often outside, like cutting grass, removing snow, repairing equipment
4. Plans transportation systems to meet the needs of all users
5. Provides information and services to external customers
6. Specializes in electrical wiring of traffic lights, lighting and other statewide systems
7. Diagnose, repair and maintain all types of heavy equipment like snow plows or trucks for MnDOT
8. Works with metal to design and build pieces for plows, wings, trucks, trailers, mowers and more.
9. Designs and builds complex products, machines, systems or structures
10. Takes and edits photos of MnDOT projects and other photography needs
11. Flies airplanes for MnDOT
12. Plans, implements, investigates and evaluates safety programs for MnDOT
13. Effectively communicates messages internally and externally
14. Drafts, reviews and approves structural plans and architectural drawings
15. Tracks money and prepares financial statements for MnDOT
16. Determines the position of points and the distances between them to establish land boundaries
17. Provides expertise regarding water resources, and soil and groundwater contamination
18. Designs publications, web graphics and other marketing materials
19. Helps keep the freeways safe and clean, and provides help to stranded motorists
20. Design attractive and functional public spaces with buildings, roads, walkways, flowers, shrubs and trees

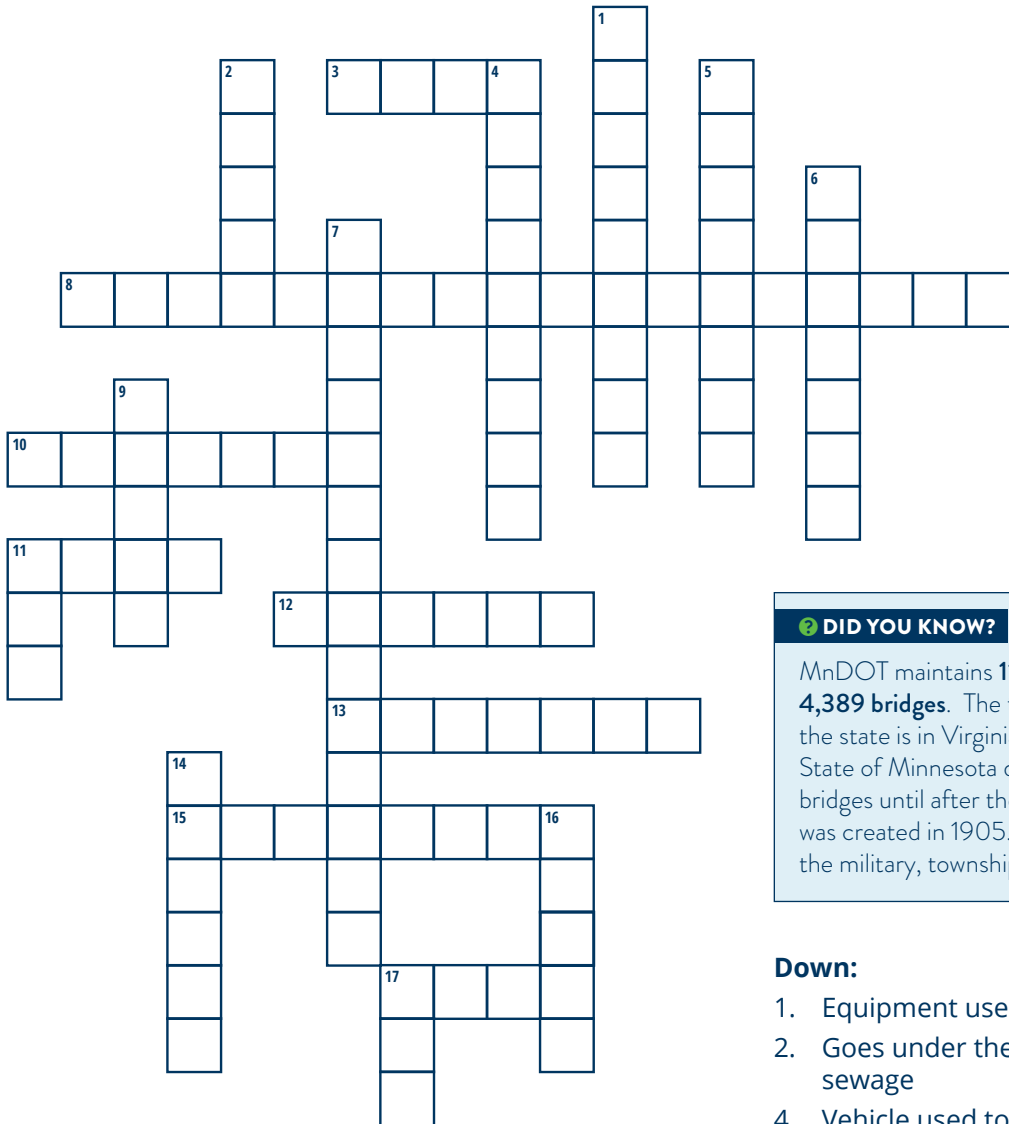
ANSWER KEY:

15, 14, 13, 5, 6, 9, 1, 18, 19, 17, 3, 16, 20, 7, 10, 11, 4, 12, 2, 8

Crossword Puzzle



MnDOT manages roads all around the state. Complete this crossword puzzle to learn about how roads are built.



Across:

3. You drive on this
8. Person who works on a job site
10. What is painted on the roads
11. Orange object used to close off an area
12. Material used to build the road base
13. Black material that makes the road smooth
15. Person who designs roads and bridges
17. People pedal this

DID YOU KNOW?

MnDOT maintains **11,733 miles of roads** and owns **4,389 bridges**. The tallest bridge above water in the state is in Virginia, MN and is 194 feet high. The State of Minnesota did not begin building roads and bridges until after the State Highway Commission was created in 1905. Before that, roads were built by the military, townships or individual people.

Down:

1. Equipment used to move dirt and rubble
2. Goes under the road to carry water and sewage
4. Vehicle used to haul materials like sand, rock and gravel
5. People walk on this
6. Worn on your head at a construction site
7. Name of industry that makes roads, bike paths and bridges
9. Equipment used to lift things to very high places
11. Some people drive one of these
14. Who the roads are built for
16. Bridges go over this body of water
17. People ride on this to school or work

Decode a Message



What is MnDOT's Mission? Use the alphabet key to decode the answer message below.

ALPHABET KEY												
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

P

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WHAT DO YOU THINK?
Which parts of MnDOT's Mission are most important to you and your family?

Mad Lib



Have you learned about how MnDOT makes a road? Write your own answers in the blank spaces below to create a silly classroom presentation script.

Hello, my name is _____ and I am a _____ for the Minnesota
Person in the room *Verb*
Department of Transportation. My experience with _____ makes me the
Verb ending in -ing
perfect person to tell you how we build _____.
Plural noun

First, we must clear the land with _____ bulldozers. Once the area is clear,
Adjective
then _____ are installed underground. Special equipment is used to smooth
Plural noun
and compact the _____ so that the road has a _____ base. Black
Noun *Adjective*
asphalt is poured and _____ are painted on the road to divide traffic lanes.
Plural noun
Street _____ are put up to tell drivers what is ahead and crosswalks are
Plural noun
installed to keep people _____. That's how you build a _____.
Adjective *Noun*

Did you know that _____ people work at MnDOT? A _____ builds
Number *Number*
roads, a _____ inspects bridges and a _____ helps care for the
Profession *Profession*
environment. Many _____ students learn about careers in transportation
Adjective
through presentations at their school. What do you want to be when you get older? A
_____. How interesting! I bet that you will be really _____ at that!
Silly profession *Adjective*

Thanks for _____. I hope that you enjoy _____ on our new road.
Verb ending in -ing *Verb ending in -ing*

I Spy



There are so many modes of transportation in Minnesota!
Find the five icons shown here in the group below.

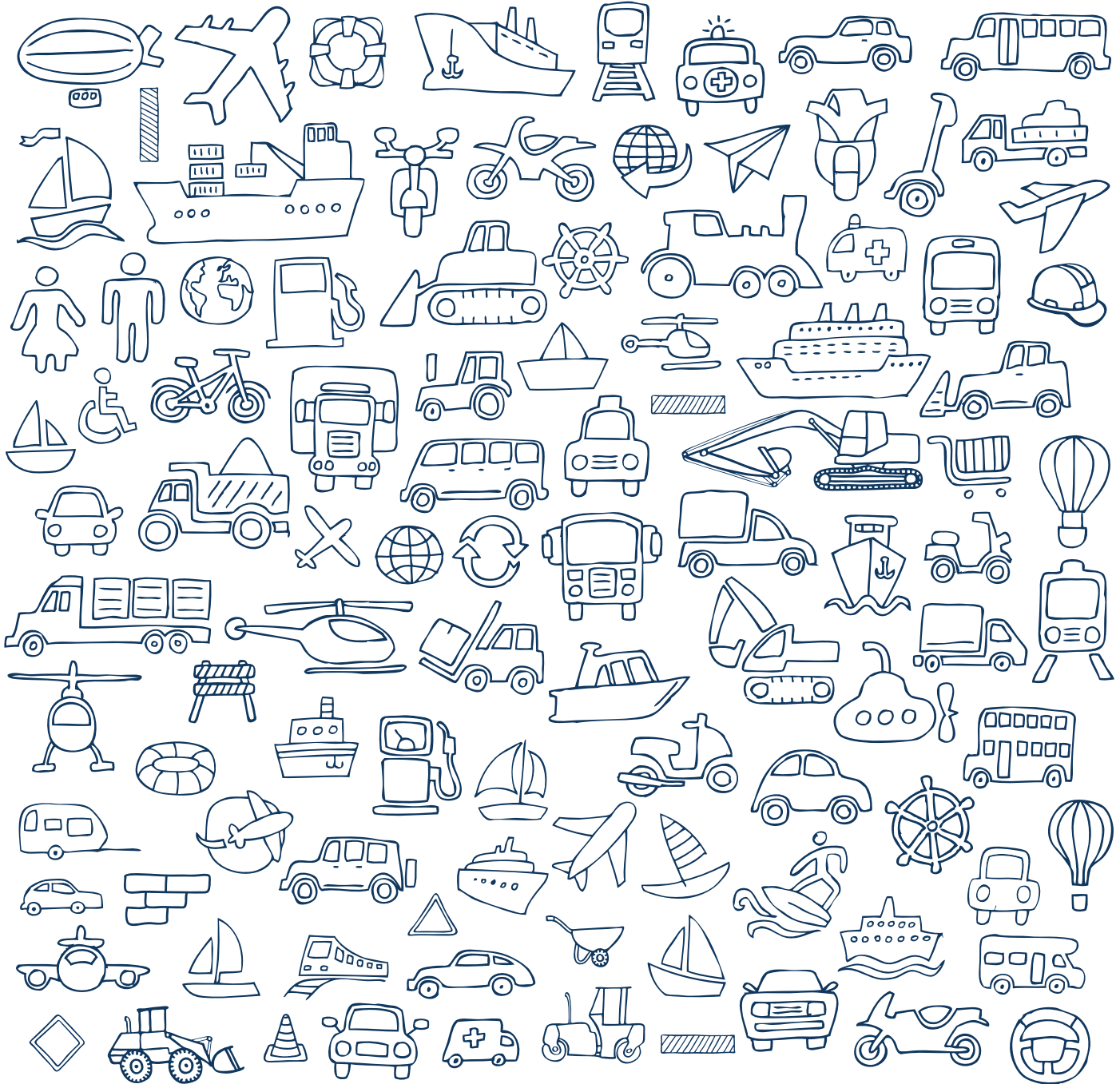


FAST FACTS

Minnesota has **135** publicly-owned and publicly-funded airports and **15** public seaplane bases.

MnDOT operates a fleet of **800** snow plows that cover **12,000** miles of road.

Bicycling contributes to **Minnesotans' quality of life** by connecting them to daily activities and creating access to the state's amenities.



Check for Safety



Safety is a core value! The Minnesota Department of Transportation works hard to keep employees and the public safe during construction. Can you spot five different unsafe practices in this construction site?



NEED SOME HELP?

Safety is essential for all construction projects. Common safety checks include:

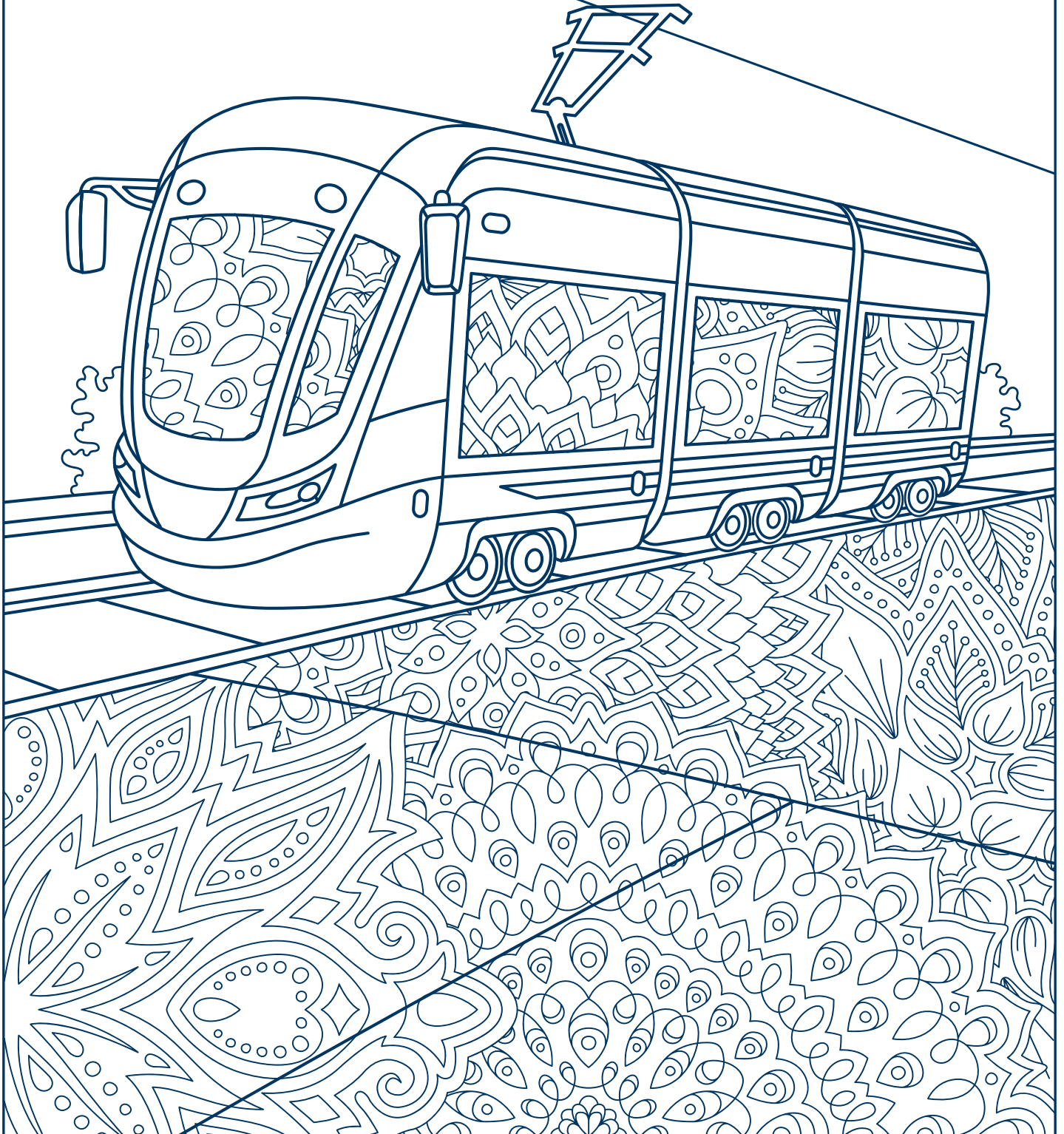
- All workers wearing a hard hat or other protective gear
- All pedestrians obeying the posted safety signs and barricades
- All people paying attention and keeping a distraction-free construction zone
- Removing any standing water to avoid slips and accidents
- Avoiding standing in the path of any heavy equipment
- Boards or loose materials that could be tripped on
- Using safe bridges and guardrails

Coloring Page



DID YOU KNOW?

Minnesota has a **vast multimodal transportation system** that includes roads, rail lines, airports, ports, waterways, pipelines, transit systems, trails, paths, sidewalks and more.

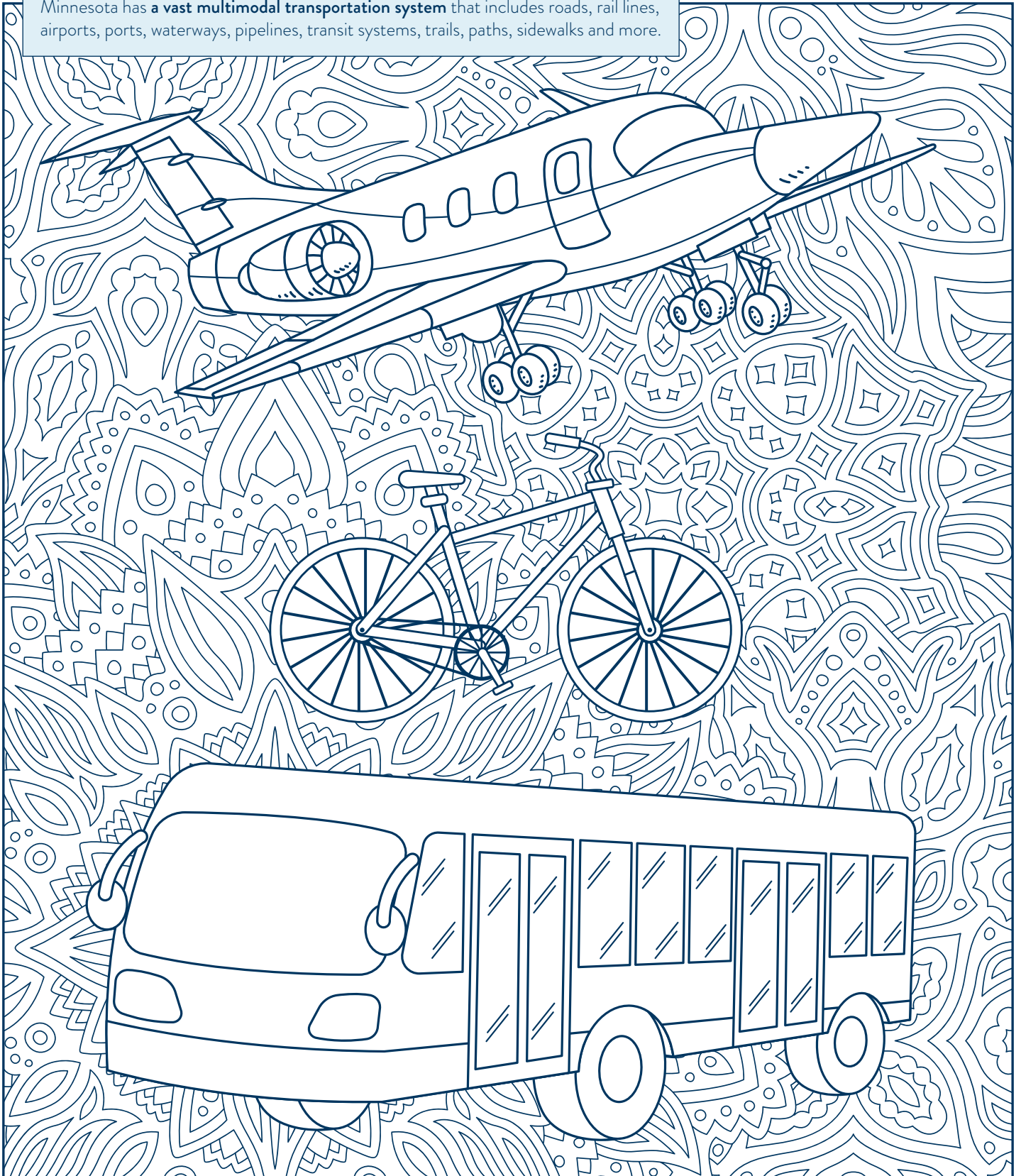


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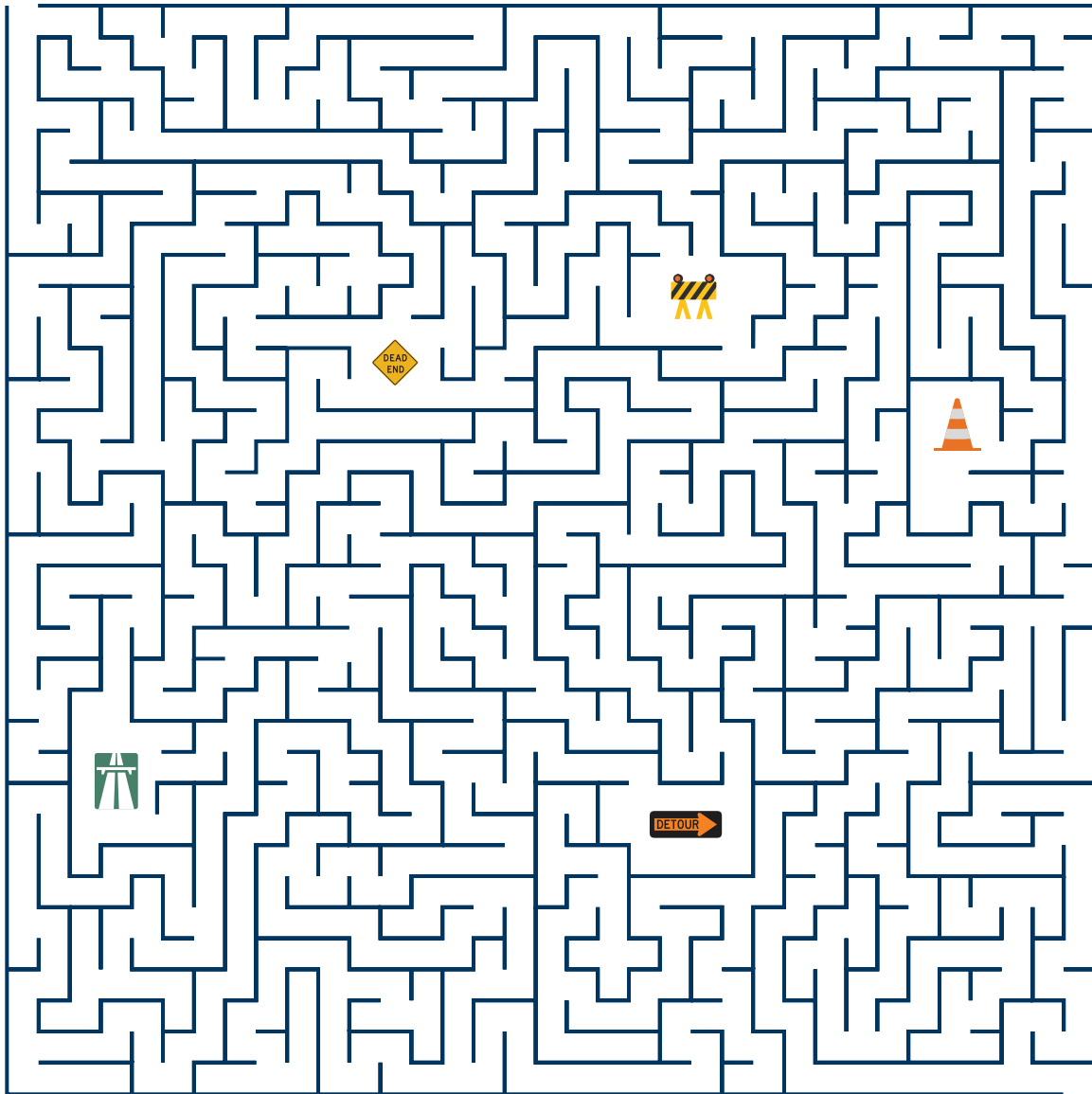


Complete the Maze



MnDOT works on many different types of projects. Help a construction worker get all the way through the maze to their job site below.

Start



Finish

DID YOU KNOW?

There are **many types of skills and careers** that go into completing a project.

- Transportation Planner
- Land Surveyor
- Archaeologist
- Hydrologist
- Project Safety Manager
- Construction Inspector
- Engineer
- Communications
- Environmental Monitoring
- Public Engagement Specialist

