# FREIGHT IMPROVEMENT PRIORITIZATION: COMBINING STAKEHOLDER INPUT AND SYSTEM CONDITION ASSESSMENTS

MAFC WEBINAR 11.03.2015



SAM HISCOCKS
FREIGHT COORDINATOR
SYSTEMS PLANNING

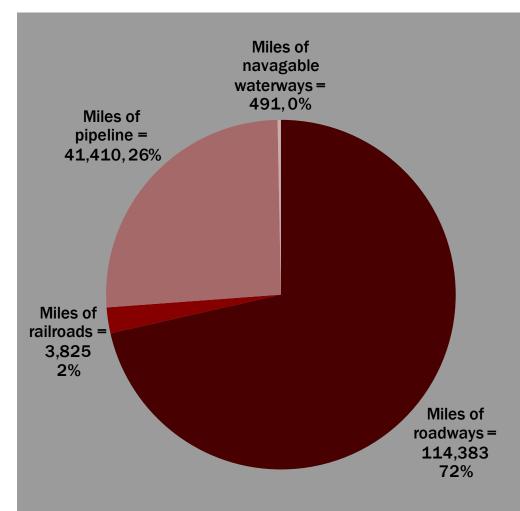
#### OUTLINE



- lowa freight overview
- Multimodal freight project identification and prioritization
- Value, Condition, and Performance (VCAP) matrix
- Results
- Next steps

## IOWA FREIGHT NETWORK





#### Total = 160,109 miles

#### SYSTEM HIGHLIGHTS

108 public airports

2,391-mile Commercial & Industrial

Network

Over 25,000 bridges

Nearly 20,000 trucking companies

84 pipeline operators

18 railroad companies

60 barge terminals

11 Lock and Dams

1 intermodal container facility

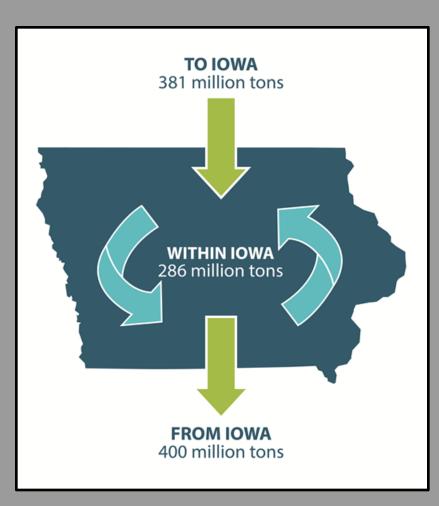
15 biodiesel plants

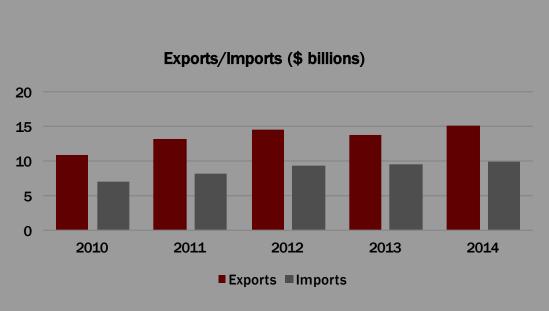
44 ethanol plants

**811** licensed grain elevators

# IOWA FREIGHT MOVEMENT

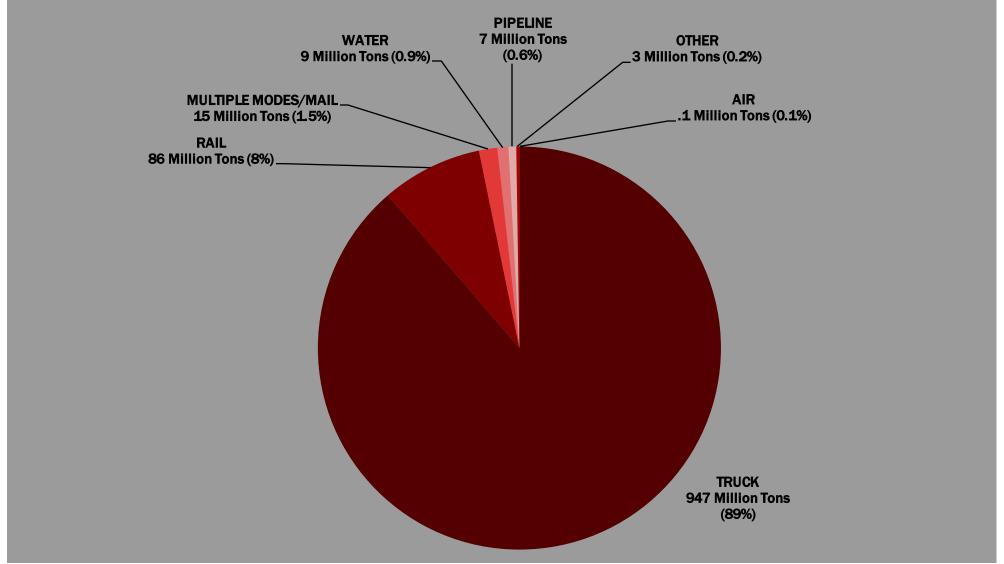






# IOWA FREIGHT MOVEMENT

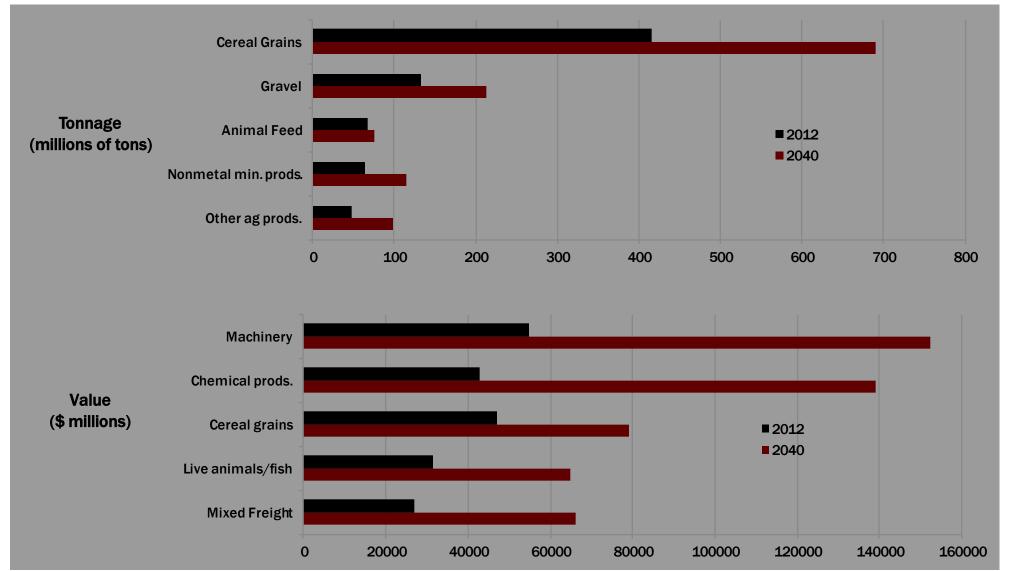




**Iowa Department of Transportation** 

## IOWA FREIGHT MOVEMENT

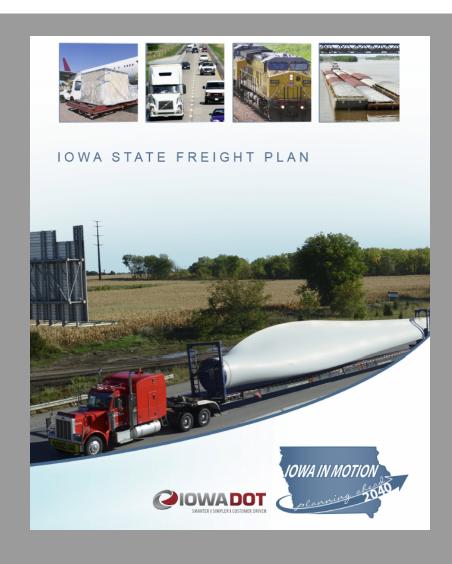




**Iowa Department of Transportation** 

# FREIGHT IMPROVEMENTS





# MULTIMODAL FREIGHT IMPROVEMENTS



- Iowa State Freight Plan
- Aviation Iowa DOT Office of Aviation
- Highway Freight Mobility Issue Survey, VCAP matrix
- Pipeline Propane Supply Chain Optimization Study
- Railroad State Rail Plan
- Waterway U.S. Army Corps of Engineers

# EXAMPLE HIGHWAY IMPROVEMENT LIST



- Value, Condition, and Performance (VCAP) matrix
- Tools
  - Freight Mobility Issue Survey
  - iTRAM statewide travel demand model
  - Infrastructure Condition Evaluation (ICE)
  - INRIX traffic data
  - Iowa DOT truck traffic data
- Process

		VALUE		CONDITION		PERFORMANCE				
MAP ID	LOCATION	ITRAM	"V" RANK	ICE	"C" RANK	INRIX	"D" BANK	AVERAGE RANKING		PRIORITY RANK
1										1
2										2
3										3
4										4
5										5

### VCAP – IMPROVEMENT LIST



- Freight Mobility Issue Survey
- Identifying locations with freight mobility issues
  - INRIX Bottleneck Ranking tool
  - Occurrences throughout the year
  - At least 30% truck traffic or more than 5,000 trucks per day
- Prioritization and additions
  - Freight Advisory Council
  - DOT Transportation District Offices
  - Metropolitan Planning Organizations (MPOs)
  - Regional Planning Affiliations (RPAs)



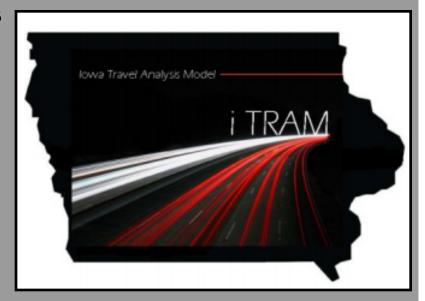
		VALUE		CONDITION		PERFORMANCE			TIEBREAK	
MAP	LOCATION	ITRΔM	"V" RANK	ICE	"C" RANK	INRIX	"P" RANK	AVERAGE	TRUCK	PRIORITY
ID	ECCATION	TITICATE V INC.	• TUATUR					RANKING	VOLUME	RANK
1										1
2										2
3										3
4										4
5										5

#### VCAP - VALUE



#### iTRAM

- Iowa Travel Analysis Model
- Updated to include freight components
- Base analysis
- Remove location with freight mobility issue(s)
- Test analysis
- Difference in statewide truck VHT





		VALUE		CONDITION		PERFORMANCE			TIEBREAK	
MAP ID	LOCATION	ITRAM	"V" RANK	ICE	"C" RANK	INRIX	"D" RANK	AVERAGE RANKING		PRIORITY RANK
1										1
2										2
3										3
4										4
5										5

#### VCAP - CONDITION



#### ICE

- Infrastructure Condition Evaluation tool
- 7 criteria
- Weighting
- Composite rating for each location

	_	_	IC	E RATING	G						_	
Rank	Corridor	Route type	All	N/E	s/w	PCI	IRI	Suff	Pass AADT	Single AADT	Combo AADT	v/c
1	US 30 (beginning of two-lane near jct of IA 1 to north jct of US30/US 61)	ND	58.58	-	-	5	з	9	5	4	4	8
2	I-380 (jct of US 30 to jct of IA- 100) <sup>1</sup>	- 1	59.83	59.95	59.71	3	3	10	1	1	6	5
3	I-35/80 (east jct of I-80/235 to west jct of I-80/235)	- 1	59.85	61.05	58.61	8	5	10	1	1	2	4
4	IA 136 (jct of US 20 to jct of IA 3/US 52)	ND	60.51	-	-	4	2	10	5	1	7	8
5	IA 136 (jct of US 151 to jct of US 20)	ND	60.87	-	-	4	2	9	8	4	6	9
6	US 69 (beginning of NHS on US 69 near Ankeny city limits to Ames south city limits)	ND	61.41	-	-	4	2	9	2	5	9	7
	LIC 169 first of L90 to cost int of											



		VALUE		CONDITION		PERFORMANCE			TIEBREAK	
MAP	LOCATION	ITRAM	"V" RANK	ICE	"C" BANK	INIRIY	"P" RANK	AVERAGE	TRUCK	PRIORITY
ID	ECCATION	TTIVALVI	V KANK	ICL	C IDUIN	HVINIA	i iu-iuic	RANKING	VOLUME	RANK
1										1
2										2
3										3
4										4
5										5

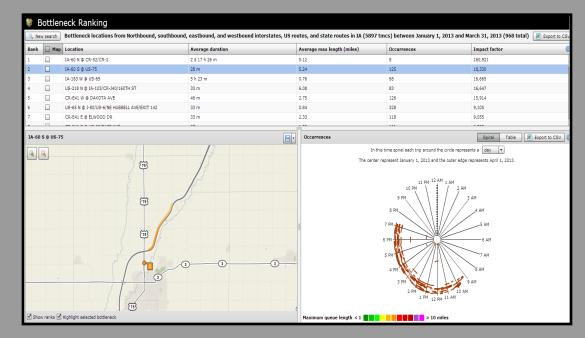
#### VCAP - PERFORMANCE



#### INRIX

- Bottleneck Ranking Tool
- Annual Occurrences







		VALUE		CONDITION		PERFORMANCE			TIEBREAK	
MAP	LOCATION	ITPAM	"V" RANK	ICE	"C" DANK	INIDIY	"P" RANK	AVERAGE	TRUCK	PRIORITY
ID	LOCATION	TTIVALVI	VIVANIK	ICL	C IIAIII	Hallin	T TOATS	RANKING	VOLUME	RANK
1										1
2										2
3										3
4										4
5										5

#### **RECAP**



- 1. Freight Mobility Issue Survey
  - Populate initial improvement list
- 2. Iowa Travel Analysis Model (iTRAM)
  - Complete analysis and then rank each location
- 3. Infrastructure Condition Evaluation (ICE) tool
  - Complete analysis and then rank each location
- 4. INRIX Bottleneck Ranking tool
  - Complete analysis and then rank each location
- **5.** Average the three rankings
- 6. Truck traffic counts
  - Tiebreaker if necessary



2

3

4

5



		VALUE		CONDITION		PERFORMANCE			TIEBREAK	
MAP	LOCATION	ITRAM	"V" RANK	ICE	"C" BANK	INRIX	"P" RANK	<b>AVERAGE</b>	TRUCK	PRIORITY
ID	EGCATION	TITIVATVI V	VIVAIVIX	ICE	·			RANKING	VOLUME	RANK
1										1
2										2
3										3
4										4
5										5

# HIGHWAY FREIGHT PROJECT PRIORITIES

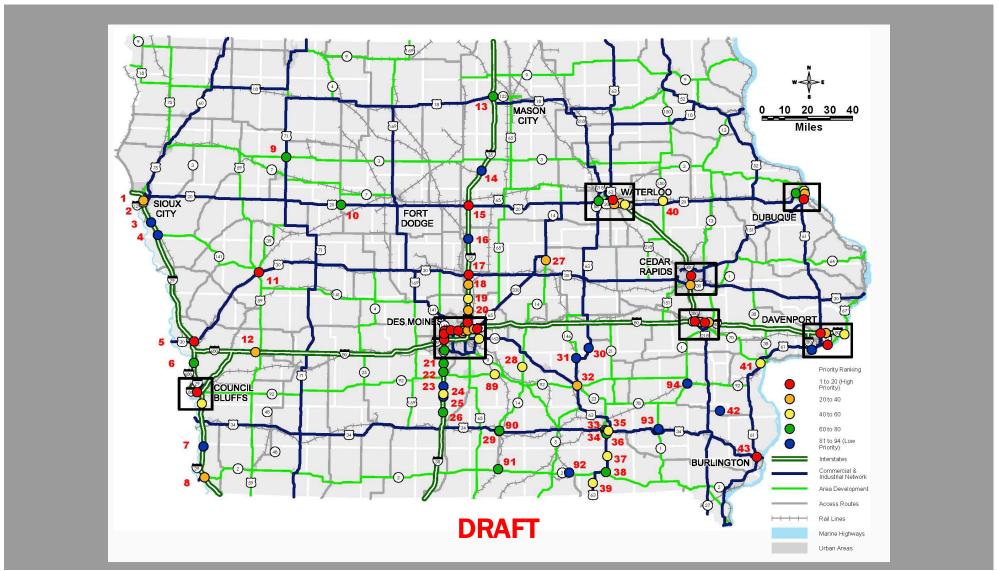


_		VA	LUE	CON	DITION	PERFO	RMANCE		TIEBREAK	
MAP	LOCATION	ITRAM	"V" RANK	ICE	"C" RANK	INRIX	"P" RANK	AVERAGE	TRUCK	PRIORITY
ID	Eccusion	1110-1111	VIVANIK	ICE	C IVAIN	Haraza	- Indian	RANKING	VOLUME	RANK
47	US-151 N/S @ MAQUOKETA DR	53.29	38	54.93	3	1040	6	15.67	2115	1
48	I-80/29 N/S THROUGH COUNCIL BLUFFS	60.79	32	56.87	6	374	16	18.00	13579	2
57	I-35/80 N/S, E/W @ IA-141	49.26	43	59.82	14	2036	2	19.67	12761	3
76	I-380 N/S THROUGH CEDAR RAPIDS	76.37	26	55.17	4	123	33	21.00	7226	4
5	US-30 E/W THROUGH MISSOURI VALLEY	21.80	58	52.78	2	1563	4	21.33	993	5
87	I-74 @ MISSSISSIPPI RIVER	90.95	23	66.38	33	706	9	21.67	2908	6
66	IA 160 E/W @ I-35 & I-35 N/S @ IA-160/ EXIT 90	108.67	18	64.56	27	114	35	26.67	8331	7
71	I-380/US-218 N/S FROM SAN MARNAN DR TO W 9TH ST	12.87	61	62.55	21	1764	3	28.33	2799	8
15	I-35 N/S @ US-20/EXIT 142 & US-20 E/W @ I-35/EXIT 153	114.43	17	74.47	55	420	14	28.67	5559	9
79	I-380 N/S @ I-80/EXIT 0 & I-80 E/W @ I-380/EXIT 239	146.63	10	73.86	53	250	24	29.00	11161	10
55	I-35/80 N/S @ DOUGLAS AVE	52.83	41	59.58	13	116	34	29.33	12884	11
82	I-80 E/W FROM 1ST AVE TO DUBUQUE ST	199.88	1	63.61	23	27	64	29.33	12240	12
11	US 30 E/W @ US-59/IA-141	60.33	33	70.01	41	387	15	29.67	1377	13
65	US-6 E @ I-80 (EAST) & US-65 N/S @ I-80/US-6/NE HUBBELL AVE/EXIT 142	44.08	44	71.79	47	9375	1	30.67	9601	14
60	I-35/80 N/S, E/W FROM MERLE HAY RD TO IA-415	75.78	27	56.44	5	30	63	31.67	14124	15
43	US-61 N/S THROUGH BURLINGTON	18.63	59	58.76	9	172	27	31.67	1107	16
17	I-35 N/S @ US-30/EXIT 111 & US-30 E/W @ I-35/EXIT 151	131.58	13	76.54	64	336	19	32.00	7633	17
51	I-80/I-35/I-235 N/S, E/W @ SW MIX MASTER	92.24	22	74.58	56	365	18	32.00	6870	18
59	I-35/80 N/S, E/W FROM NW 86TH ST TO MERLE HAY RD	67.38	30	59.15	12	45	55	32.33	14089	19
84	US-61 N/S @ I-80/EXIT 123 & I-80 E @ US-61/BRADY ST/EXIT 295	53.65	36	71.04	44	368	17	32.33	11230	20
54	I-35/80 N/S @ US 6/HICKMAN	53.37	37	58.81	11	61	51	33.00	12804	21
63	I-35 N/I-235 W @ I-80/I-235/EXIT 87 & I-80 E/W @ I-235/I-35/EXIT 137	119.00	16	75.19	59	226	25	33.33	11709	22
80	I-80 E/W FROM I-380 TO IA-965	165.25	8	62.23	20	0	73	33.67	12726	23
83	I-80 E/W FROM DUBUQUE ST TO IA-1	196.39	2	65.13	28	0	73	34.33	12389	24



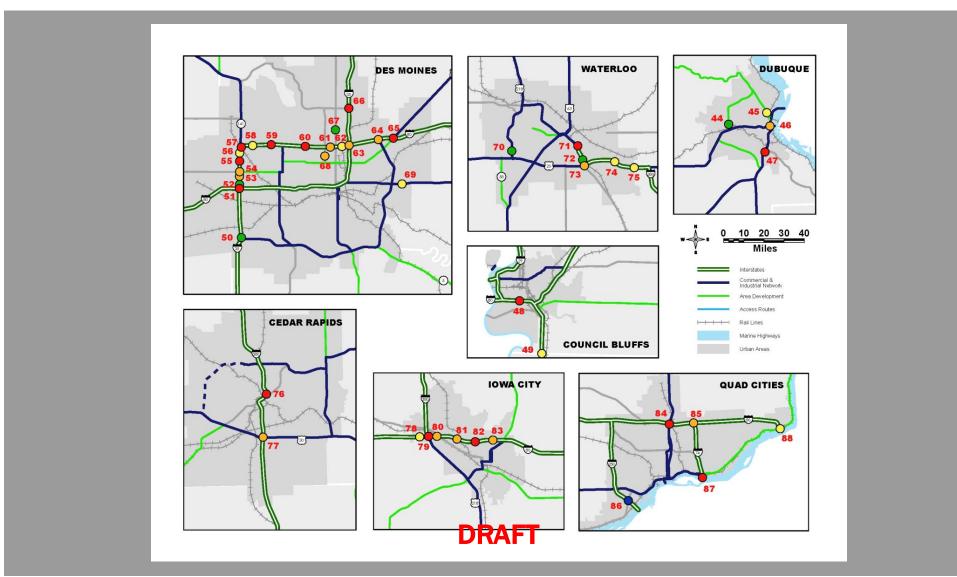
# HIGHWAY FREIGHT PROJECT PRIORITIES





# HIGHWAY FREIGHT PROJECT PRIORITIES





#### NEXT STEPS



- Complete draft prioritized project lists for remaining modes
- Present to Freight Advisory Council for feedback
- Gather input from other stakeholders
- Finalize lists for public input phase

#### **CONTACT**

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