# BEFORE THE WASHINGTON STATE UTILITIES AND TRANSPORTATION COMMISSION

	) DOCKET NO. TR-100036		
MEEKER SOUTHERN RAILROAD	)		
Petitioner,	) MEEKER'S COMBINED (1) ) PETITION UNDER WAC 480-62-140 ) FOR EXEMPTION FROM THE		
VS.	) FOR EXEMPTION FROM TH ) MUTCD'S MINIMUM TWO-FOO ) HORIZONTAL OFFSET STANDAR		
PIERCE COUNTY PUBLIC WORKS & UTILITIES	) BETWEEN EDGE OF PAVED ) SHOULDER TO FLASHING LIGHT		
Respondent	) SIGNALS AND (2)		
	) AMEND ORDERS 01 AND 03 IN		
	) REGARD TO APPROVAL ) CONDITION 2 OF ORDER 01		
	) ) USDOT CROSSING #085536R		
	) UTC CROSSING #42A32.40		

# I. RELIEF REQUESTED

Petitioner MEEKER SOUTHERN RAILROAD ("Meeker"), through its attorney of record, David L. Halinen, hereby petitions the Washington State Utilities and Transportation Commission (the "Commission") under WAC 480-62-140 for an exemption from the minimum two-foot horizontal offset standard between edge-of-paved-shoulder to nearest point of flashing light signals set forth in Section 8C.01 of the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (December 2009 edition, the "MUTCD") (such standard being referred to herein as the

(1) PETITION UNDER WAC 480-62-140 FOR EXEMPTION FROM AN MUTCD STANDARD AND (2) MOTION TO AMEND ORDERS 01 AND 03—Page 1

HALINEN LAW OFFICES, P.S. 1019 Regents Blvd, Suite 202 Fircrest, WA 98466-3397 (206) 443-4684/(253) 627-6680 (253) 272-9876 FAX "Minimum Two-Foot Horizontal Offset Standard") to the extent necessary to allow both

(a) Meeker's recently installed flashing light signal on the north side of the 134th Avenue

East highway-rail grade crossing to remain in its current location (lying within

approximately nine inches of the paved shoulder of 134th) and (b) Meeker's recently

installed flashing light signal on the south side of the 134th highway-rail grade crossing

to remain in its current location (lying within approximately 20 inches of the paved

shoulder of 134th) (the "Proposed Exemption").

The Proposed Exemption is being sought because the Minimum Two-Foot Horizontal

Offset Standard is contained within MUTCD Part 8 (Traffic Control for Railroad and

Light Rail Transit Grade Crossings), which is a part of the MUTCD that the Commission

has adopted by reference under WAC 480-62-230(1).

3 Meeker correspondingly moves for an order further amending Order 01 entered January

12, 2010 (the order granting Petitioner's petition to modify a public highway-rail grade

crossing and upgrade warning devices at 134th Avenue East in unincorporated Pierce

County) and Order 03 (which already amended Order 01). Specifically, Meeker seeks an

order amending Approval Condition 2 as set forth in Order 01 and as reiterated in Order

03 so that Approval Condition 2 will be consistent with a grant by the Commission of the

Proposed Exemption.

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Subsection (1) of WAC 480-62-140 (Exemptions from rules) authorizes the Commission

to "grant an exemption from the provision of any rule in chapter [480-62 WAC], when

doing so in chapter 480-62 WAC is consistent with the public interest, the purposes

underlying regulation, and applicable statutes."

- RCW 80.04.210 and WAC 480-07-875(1) authorize the Commission to alter or amend an order after providing notice to the affected public service company and to all parties in the underlying proceeding.
- RCW 80.04.210 and WAC 480-07-875(1) authorize the Commission to alter or amend an order after providing notice to the "affected public service company" (in this case, only Pierce County Public Works & Utilities) and to "all parties in the underlying proceeding" (in this case, also only Pierce County Public Works & Utilities).

In support of this Petition and Motion, Meeker states as follows:

### II. STATEMENT OF FACTS

- The grade crossing modification that was the subject of the Petition granted by Order 01 (an order subsequently amended by Order 03) was an addition of a spur track along the south side of 134th Avenue East's current at-grade crossing of Petitioner's existing mainline track that is located immediately north of Pioneer Way East (in unincorporated Pierce County, Washington).
- 8 In Order 03, Approval Condition 1 of Order 01 was amended to state as follows:
  - (1) Unless otherwise approved by both Commission Staff and Public Works, Tthe crossing modifications must conform to those described and attached to the petition and set forth on (a) Sheets C1.2 and C1.3 of the civil engineering design drawings. The drawings are identified by December 29, 2009, and bearing October 20, 2009 approval signatures of Brian D. Stacy, P.E., on behalf of the Pierce County Public Works Director and (b) Sheets C1.0, C1.1, C2.0 and C4.0 of the civil engineering design drawings bearing January 25, 2011 approval signatures on behalf of the Pierce County Public Works Director.
- 9 Prior to the grade crossing modification, 134th did not have paved shoulders at or near

the crossing. During the preparation of the civil engineering design drawings for the

grade crossing modification, Meeker had its civil engineering design consultant, Sitts &

Hill Engineers, Inc., propose six-foot-wide paved shoulders as part of the grade crossing

modification work. Six-foot-wide paved shoulders are consistent with the Pierce County

Road Standards for roads being improved. Such shoulders are depicted on the set of the

civil engineering design drawings approved by the Pierce County Department of Public

Works & Utilities ("Public Works").

Sheet C2.0 of the approved civil engineering design drawings depicts a minimum 8.5-

foot dimension from the center of the fog line of 134th to the center of each of the two

flashing light signal system masts. As the masts were constructed, that minimum

distance was fully complied with. (In fact, the mast on the north side of the tracks was

installed such that the mast's center lies approximately 9 feet 7 inches from the center of

the fog line and the mast on the south side of the tracks was installed such that the mast's

center is approximately 9 feet 1 inch from the center of the fog line.) Unfortunately, none

of the civil engineering design drawings depicted the Minimum Two-Foot Horizontal

Offset Standard.

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The Minimum Two-Foot Horizontal Offset Standard is embodied in the following

excerpt from Section 8C.01 of the MUTCD:

Standard:

The meaning of flashing-light signals and gates shall be as stated in the "Uniform Vehicle Code" (see Sections 11-701 and 11-703 of the

UVC), which is available from the National Committee on Uniform

Traffic Laws and Ordinances (see Page i for the address).

Location and clearance dimensions for flashing-light signals

and gates shall be as shown in Figure 8C-1.

- When there is a curb, a horizontal offset of at least 2 feet shall be provided from the face of the vertical curb to the closest part of the signal or gate arm in its upright position. When a cantilevered-arm flashing-light signal is used, the vertical clearance shall be at least 17 feet above the crown of the highway to the lowest point of the signal unit.
- Where there is a shoulder, but no curb, a horizontal offset of at least 2 feet from the edge of a paved or surfaced shoulder shall be provided, with an offset of at least 6 feet from the edge of the traveled way.
- Where there is no curb or shoulder, the minimum horizontal offset shall be 6 feet from the edge of the traveled way.

(Emphasis added.) A copy of Figure 8C-1 is attached hereto for reference as <u>Exhibit A</u>.

- Meeker installed the signal masts and the signal equipment and signage thereon in accordance with the approved civil engineering drawings in good faith, unaware of the Minimum Two-Foot Horizontal Offset Standard. The signal masts are embedded in reinforced concrete foundations.
- During a May 26, 2011 site inspection meeting among representatives of Meeker, Public Works, and Commission Staff, Commission Staff raised a question as to whether the Minimum Two-Foot Horizontal Offset Standard had been met. In response to that question, measurements were taken by Commission Staff and Public Works staff members and it was discovered that that standard had not been met because some of the roundels (which ring the flashing light lamps) intrude somewhat into the minimum two-foot offset area (the roundel on the signal mast south of the tracks intruding by four inches and the roundel on the signal mast north of the tracks intruding by 15 inches). However, in view of (a) the physical circumstances of the roadway and the shoulder in relation to the locations of the roundels and (b) the height of the roundels, (i) a safety concern is not posed by the intrusion of the roundels into the minimum two-foot offset

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area, (ii) relocation of the signal masts is unwarranted, and (iii) an exemption from the standard is appropriate.

In regard to the physical circumstances of the roadway, the segment of 134th that straddles both of the now-existing tracks at the crossing between Pioneer Way (to the south) and 80th Street East (to the north) is short and includes a curve. Apparently due to (a) that short, curving segment of 134th and (b) the main-line track and the recently constructed spur track both crossing 134th, motor vehicle speeds along 134th are very slow. Even before the recent addition of the spur track, average motor vehicle speeds along 134th at the subject crossing were measured during a speed study at between only 12.9 and 13.5 miles per hour. Such slow speeds make the risk of a collision between a motor vehicle and the roundels especially unlikely, taking into account that (i) each travelled lane is a full 12 feet wide, (ii) each shoulder is a full six feet wide, and (iii) the closest edge of each of the roundels located closest to the street lies fully outside of the outside edge of the paved shoulder (20 inches outside of that edge in the case of the south

#### Measured Vehicle Speeds at the Crossing

On April 20, 2009, I personally conducted from 4:20 p.m. to 5:00 p.m. a 40-minute-long radar gun study of motor vehicles traveling both north and south along 134th Avenue East at the subject crossing. I found that (1) northbound vehicles traveled at an average speed of 12.9 miles per hour at the crossing and (2) southbound vehicles traveled at an average speed of 13.5 miles per hour at the crossing. These low speeds appear to be reflective of both the existence of the crossing of the existing main line railroad track and the relatively short distances along 134th between the existing track and Pioneer Way East (to the south) and 80th Street East (to the north).

<sup>&</sup>lt;sup>1</sup> On page 4 of the December 31, 2009 Engineering Review and Evaluation (Third Revised Version) report prepared by transportation engineer Gregary B. Heath, P.E. of Heath & Associates, Inc. concerning Meeker's grade crossing modification proposal, Mr. Heath explained the outcome of his motor vehicle speed study along 134th at the then-existing highway-rail grade crossing as follows:

mast and nine inches outside of that edge in the case of the north mast).<sup>2</sup>

edge of the roundel nearest the road on the masts on both the north and south sides of the tracks is approximately 7 feet 11 inches (i.e., 95 inches). In view of those heights, virtually all passenger vehicles and even cargo vans would pass under the roundels if the vehicles somehow strayed beyond the paved shoulders as far as the roundels. [See attached Exhibit B, which is a table of a broad sampling of the maximum height of minivans and cargo vans and accompanying corresponding vehicle specification sheets

In regard to the height of the roundels, the vertical distance from the ground to the lowest

from www.edmunds.com from which the data set forth in the table was compiled. All of

the vehicles listed (including the 2003 Dodge Sprinter 2500 High Ceiling 118 WB

Passenger Van, which has a maximum height of 93.5 inches, and the 2006 Dodge

Sprinter 2500 140 WB Cargo Van, which has a maximum height of 94.7 inches—those

two vehicles being by far the tallest of the sampled vehicle makes and models) were less

than 95 inches in height.]

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Also, the existence of a power pole located along the west edge of 134th north of the signal mast that is situated north of the tracks acts as a "guard" to the signal mast and the roundel on it. (See the attached annotated color ground photo, Exhibit C, a photo taken June 5, 2011.) That power pole makes it highly unlikely that any vehicles traveling southbound on 134th, even if tall enough to strike the roundel, would stray far enough off

of the shoulder to do so. In order for a motor vehicle traveling southbound along 134th to

<sup>&</sup>lt;sup>2</sup> It should be noted that, prior to the grade crossing modification work, a conventional crossbuck railroad warning sign existed along each side of 134th. Both of those two signs were situated approximately three feet closer to the centerline of 134th than the recently-installed signal masts are situated to the centerline of 134th. During the 11 years of Meeker's operation of the main rail line before the grade crossing modifications were

strike the roundel on the north signal mast, it would have to veer sharply over after first passing the power pole.

In follow-up to the May 26, 2011 site inspection meeting among representatives of Meeker, Public Works, and Commission Staff referred to in paragraph 13, above, on June 3, 2011, Commission Staff filed in Docket No. TR-100036 a "COMMISSION STAFF and PIERCE COUNTY INSPECTION REPORT" dated June 3, 2011. Paragraphs 9 and 10 of that reports state in their entirety:

Location of Signal Masts. The UTC Staff and Pierce County representatives measured the horizontal distances from the edges of the pavement to the closest part of the signals and found them to be less than two feet. Two feet is the minimum distance required under Paragraph 07 in Section 8C.01 of the 2009 U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD). On the south side of the 134<sup>th</sup> Avenue East crossing, the closest hood on the flashing light assembly is 20 inches from the edge of the pavement, four inches short of the standard. On the north side of the crossing, the closest hood on the flashing light assembly is nine inches from the edge of the pavement, 15 inches short of the standard. The signal mast placements do not conform to the MUTCD or Condition (2) of Order 01 in this docket.

The Washington Utilities and Transportation Commission has adopted by reference Part 8 of the MUTCD in WAC 480-62-230(1) and WAC 480-62-999(2). UTC Staff has referred Meeker to WAC 480-62-140 as a possible means for seeking an exemption from the two-foot minimum in Section 8C.01 of the 2009 MUTCD. Pierce County does not oppose such an exemption.

(Emphasis added.)

## III. ARGUMENT

- Under the above-noted factual circumstances, public safety (which is obviously the public's interest in and the purpose of the Minimum Two-Foot Horizontal Offset Standard) would not be jeopardized. Accordingly, under Subsection (1) of WAC 480-62-140 (Exemptions from rules), the Commission has authority to grant the Proposed Exemption and, under the above-noted factual circumstances, should do so.
- Amendment to Approval Condition 2 as set forth in Order 01 and as reiterated in Order 03 should logically be made so that Approval Condition 2 will be consistent with a grant by the Commission of the Proposed Exemption.

# IV. REQUESTS AND CONCLUSION

- Meeker requests that the Commission approve the Proposed Exemption as defined in paragraph 1, above.
- Meeker also requests that Approval Condition 2 of Order 01 (which was restated in paragraph 27 of Order 03) be revised to state as follows:
  - Traffic control devices must comply with all applicable standards specified in the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD); provided, however, in view of the exemption granted to Meeker by the Commission under WAC 480-62-140, the location of the flashing lights signal system need not comply with the minimum two-foot horizontal offset standard between edge-of-paved-shoulder to nearest point of flashing light signals set forth in Section 8C.01 of the MUTCD to the extent necessary to allow both (a) Meeker's installed flashing light signal on the north side of the tracks at the 134th Avenue East highway-rail grade crossing to remain in its current location (lying within approximately nine inches of the paved shoulder of 134th) and (b) Meeker's installed flashing light signal on the south side of the tracks

at the 134th Avenue East highway-rail grade crossing to remain in its current location (lying within approximately 20 inches of the paved shoulder of 134th). If, in the future, there is any widening of either side of 134th Avenue East at the crossing, the signal mast on the widened side(s) of 134th must be relocated to the extent necessary to bring the location of the signal in compliance with the MUTCD's then-applicable horizontal offset standard.

For the foregoing reasons, Meeker respectfully requests that the above-stated Petition and Motion be granted.

DATED this 7th day of June 2011.

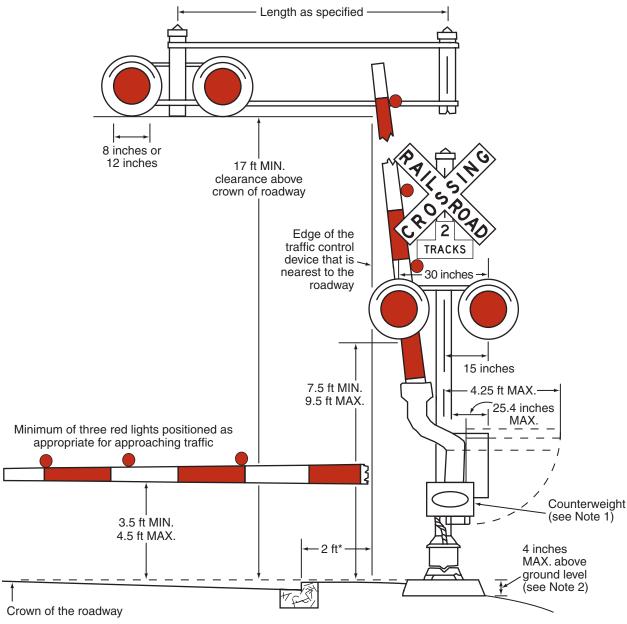
HALINEN LAW OFFICES, P.S.

David L. Halinen

WSBA #15923

Attorney for Meeker Southern Railroad

Figure 8C-1. Composite Drawing of Active Traffic Control Devices for Grade Crossings Showing Clearances



\*For locating this reference line on an approach that does not have a curb, see Section 8C.01.

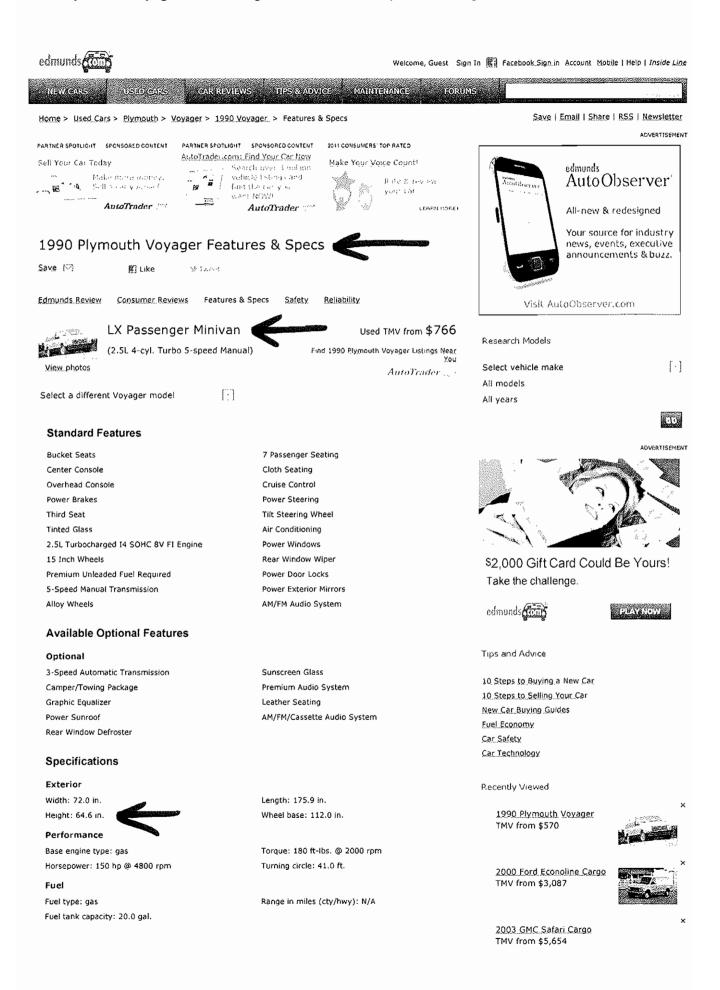
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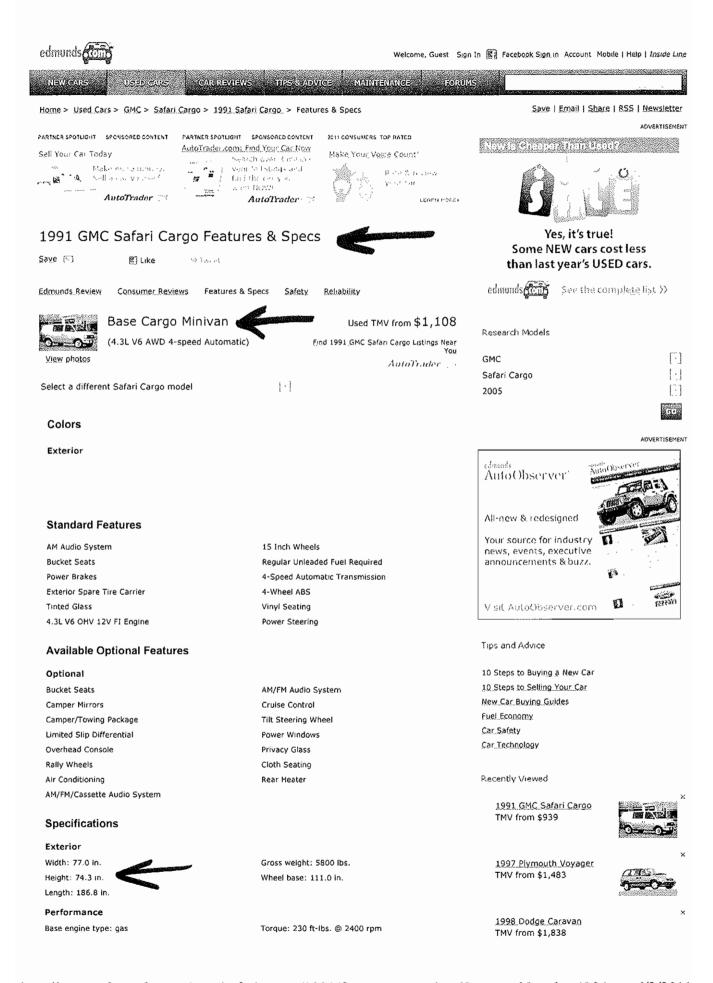
- 1. Where gates are located in the median, additional median width may be required to provide the minimum clearance for the counterweight supports.
- 2. The top of the signal foundation should be no more than 4 inches above the surface of the ground and should be at the same elevation as the crown of the roadway. Where site conditions would not allow this to be achieved, the shoulder side slope should be re-graded or the height of the signal post should be adjusted to meet the 17-foot vertical clearance requirement.

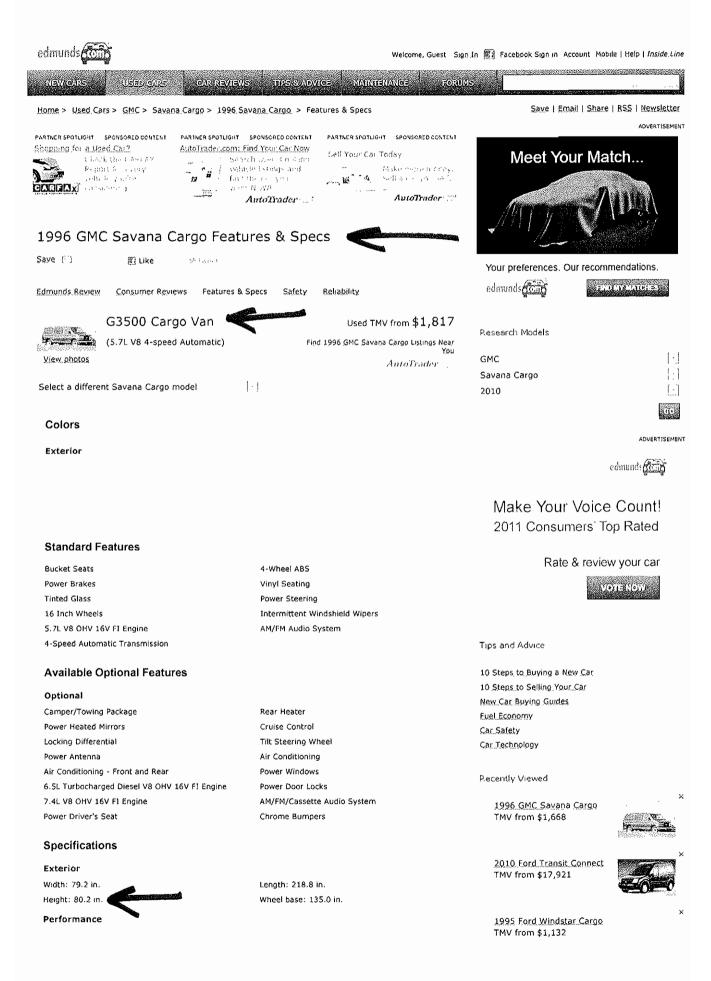
Sect. 8C.02 December 2009

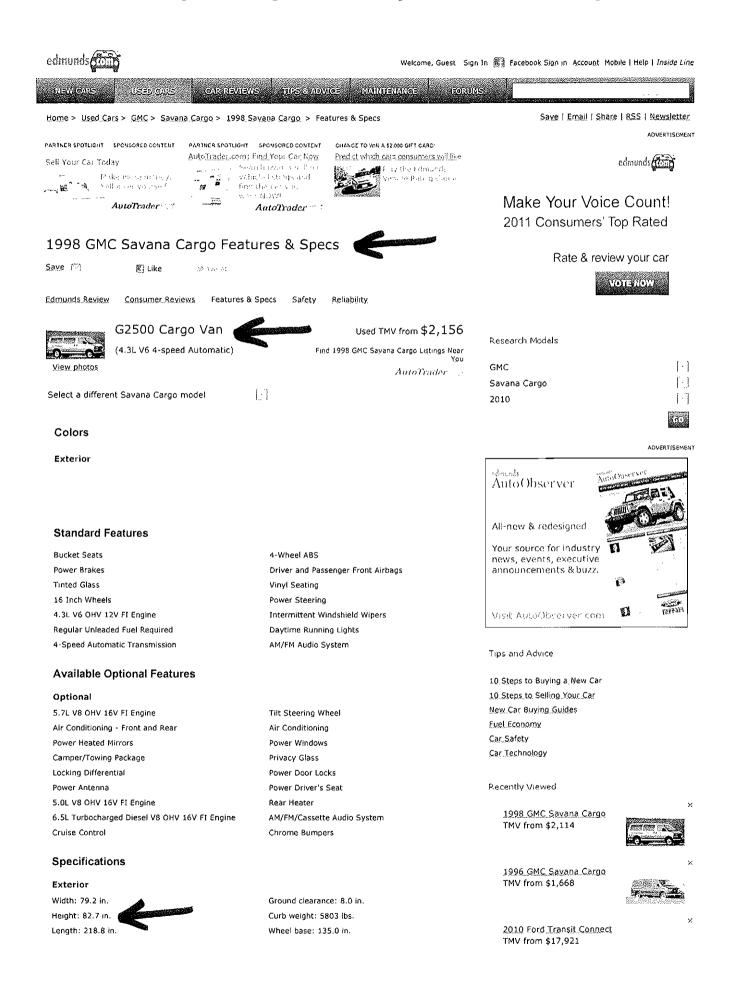
# **EXHIBIT B**

SAMPLING OF VARIOUS MODEL MINIVAN AND CARGO VAN HEIGHTS, 1990-2011				
YEAR	MAKE AND MODEL	HEIGHT		
1990	Plymouth Voyager LX Passenger Minivan	64.6 in.		
1991	GMC Safari Base Cargo Minivan	74.3 in.		
1995	Ford Windstar Base Cargo Minivan	67.9 in.		
1996	GMC Savana G3500 Cargo Van	80.2 in.		
1998	GMC Savana G2500 Cargo Van	82.7 in.		
1999	Chevrolet Express G2500 Cargo Van	79.6 in.		
1999	Ford Econoline E-250 Cargo Van	83.4 in.		
1999	Ford Econoline E-350 Super Duty XL Passenger Van	84.1 in.		
2000	Chevrolet Astro Base Cargo Minivan	74.9 in.		
2000	Dodge Caravan SE Passenger Minivan	68.5 in.		
2000	Ford Econoline E-250 Cargo Van	80.0 in.		
2000	Ford Econoline E-350 Super Duty Cargo Van	80.5 in.		
2001	Chevrolet Express Base Cargo Van	79.6 in.		
2001	Ford Econoline E-350 Super Duty Cargo Van	80.7 in.		
2002	Chevrolet Express Base Cargo Van	79.6 in.		
2002	Ford Econoline E-350 Super Duty Cargo Van	80.7 in.		
2003	Dodge Sprinter 2500 High Ceiling 118 WB Passenger Van	93.5 in.		
2003	GMC Safari Base Cargo Minivan	75.0 in.		
2004	Ford Econoline E-250 Cargo Van	83.4 in.		
2004	Ford Econoline E-350 Super Duty Cargo Van	83.4 in.		
2005	Chevrolet Astro Base Cargo Minivan	75.0 in.		
2005	GMC Safari Base Cargo Minivan	75.0 in.		
2006	Dodge Sprinter 2500 140 WB Cargo Van	94.7 in.		
2007	Chevrolet Express 1500 Cargo Van	81.6 in.		
2007	Ford Econoline E-150 Cargo Van	81.2 in.		
2007	Ford Econoline E-250 Cargo Van	83.4 in.		
2008	Ford Econoline E-150 Cargo Van	82.1 in.		
2008	Ford Econoline E-350 Super Duty Cargo Van	83.4 in.		
2009	Ford Econoline E-250 Cargo Van	83.7 in.		
2009	Ford Econoline E-350 Super Duty Cargo Van	83.7 in.		
2010	Chevrolet Express 2500 Cargo Van	81.6 in.		
2010	Chevrolet Express 3500 Cargo Van	8136 in.		
2010	Ford Transit Connect Cargo Minivan XLT	79.3 in.		
2011	Ford E-Series E-150 Cargo Van	82.4 in.		
2011	Ford E-Series E-250 Super Duty Reg. Length	84.8 in		
2011	Ford E-Series E-350 Super Duty Reg. Length	83.7 in		

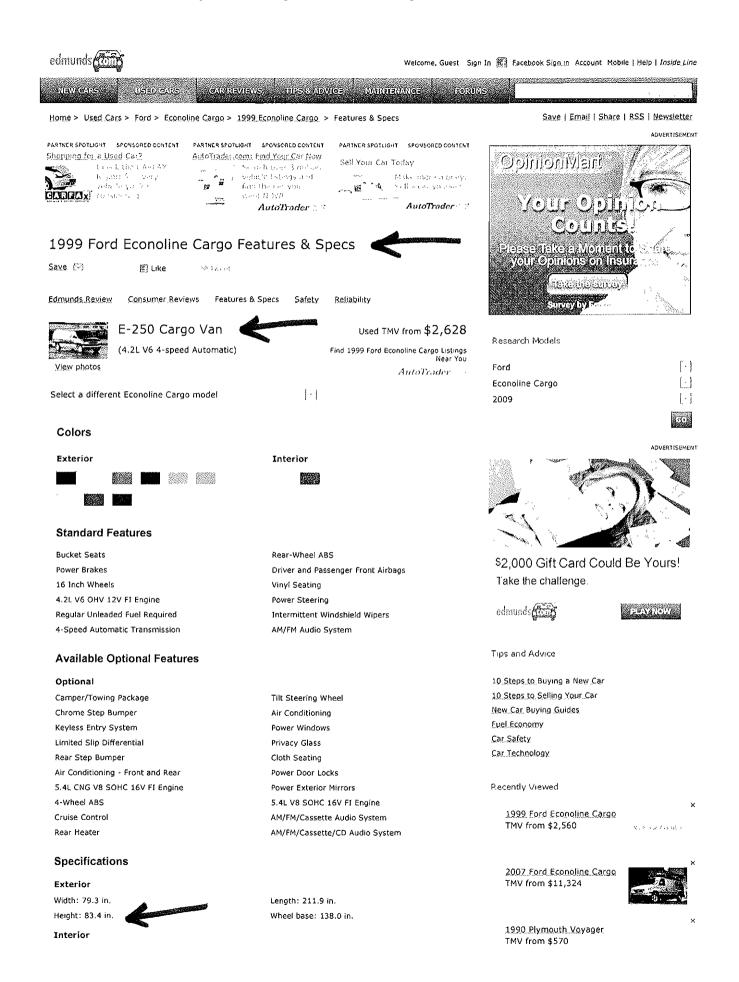




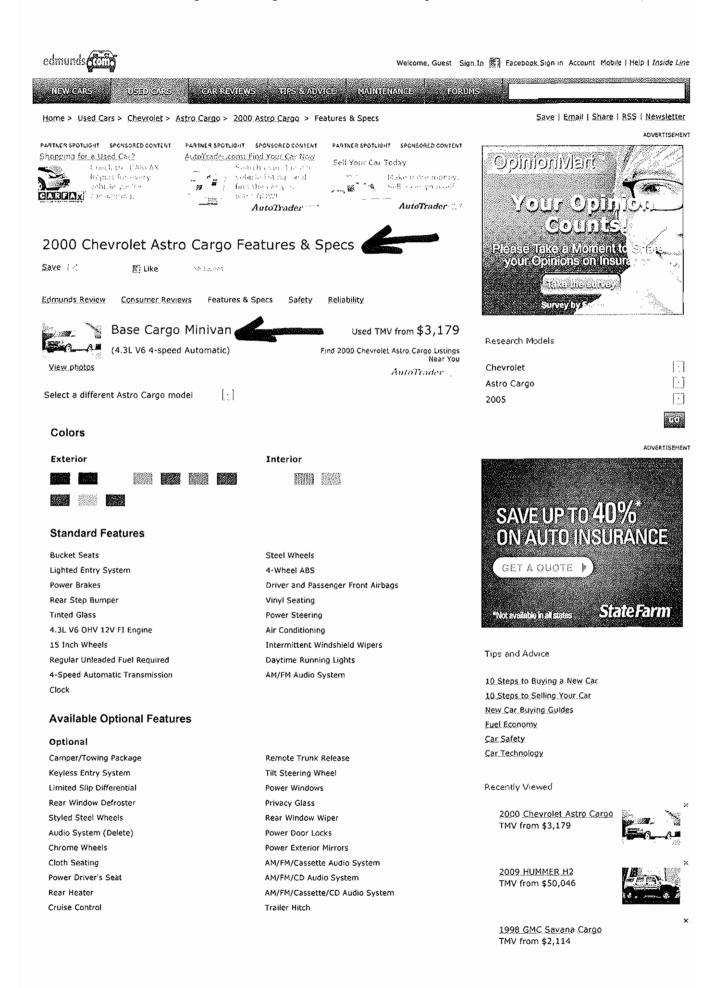












#### **Specifications**

#### Exterior

Width: 77.5 in. Height: 74.9 in.

Length: 189.8 in.

Ground clearance: 6.8 in. Wheel base: 111.2 in.

1996 GMC Savana Cargo TMV from \$1,668



#### Interior

Front head room: 39.2 in. Front hip room: 64.9 in.

Performance

Base engine type: gas

Horsepower: 190 hp @ 4400 rpm

Fuel

Fuel type: gas

Fuel tank capacity: 27.0 gal.

Front leg room: 41.6 in. Front shoulder room; 64.0 in.

Torque: 250 ft-lbs. @ 2800 rpm Turning circle: 40.5 ft.

Range in miles (cty/hwy): N/A

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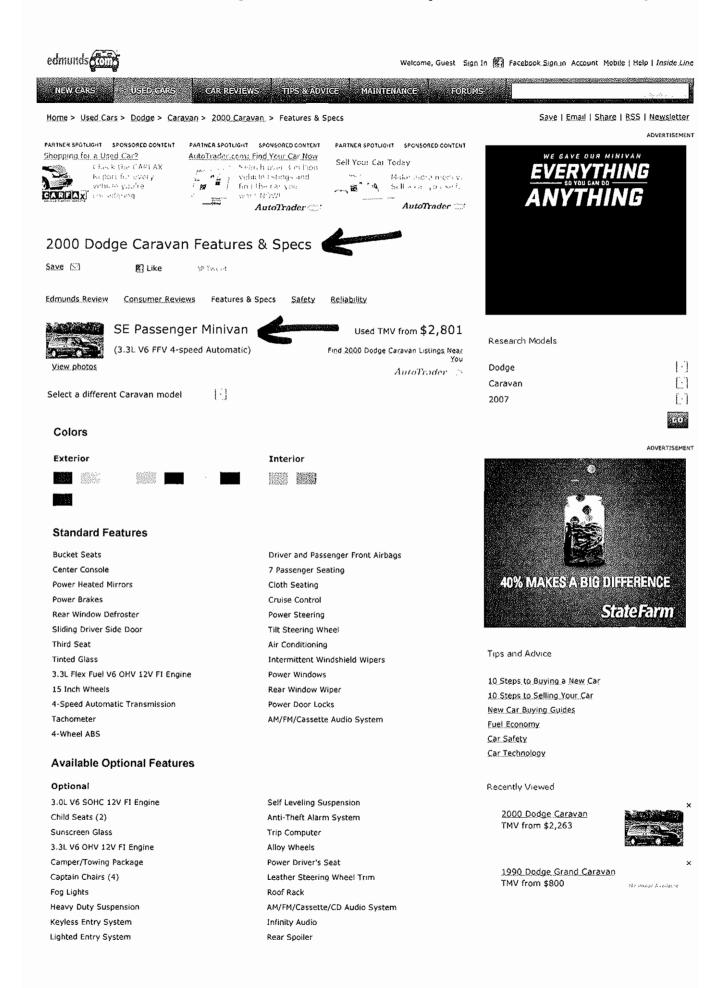
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# Overhead Console **Specifications**

#### Exterior

Height: 68.5 in. Length: 186.3 in.

Width: 76.8 in.

Ground clearance: 5.4 in. Curb weight: 3851 lbs. Wheel base: 113.3 in.

Interior

Rear hip Room: 61.3 in. Rear head room: 40.1 in. Rear leg room: 36.6 in. Rear shoulder room: 63.8 in.

Performance

Base engine type: flex-fuel (FFV) Horsepower: 158 hp @ 4850 rpm Torque: 203 ft-lbs. @ 3250 rpm

Turning circle: 37.6 ft.

Fuel

Fuel type: flex-fuel (FFV) Fuel tank capacity: 20.0 gal. Range in miles (cty/hwy): N/A

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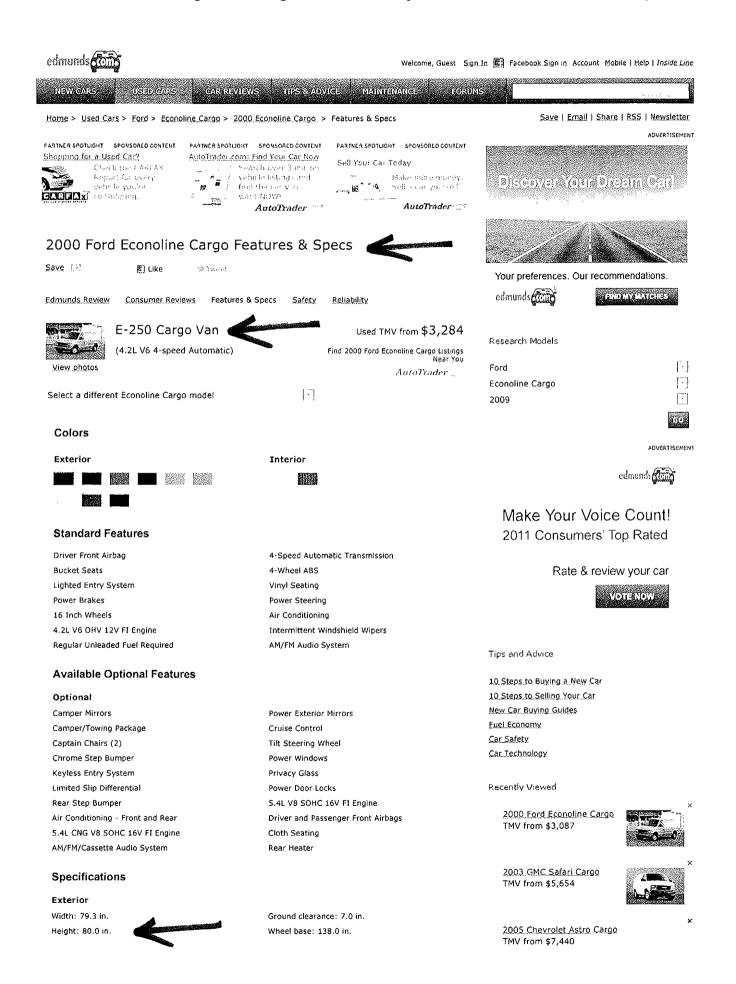
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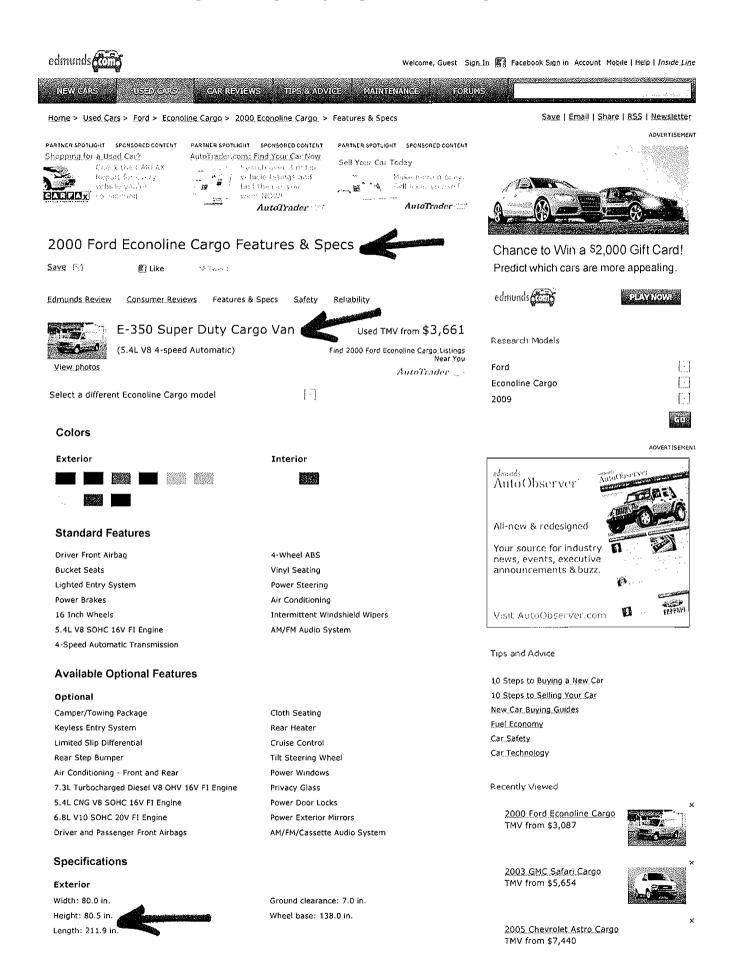
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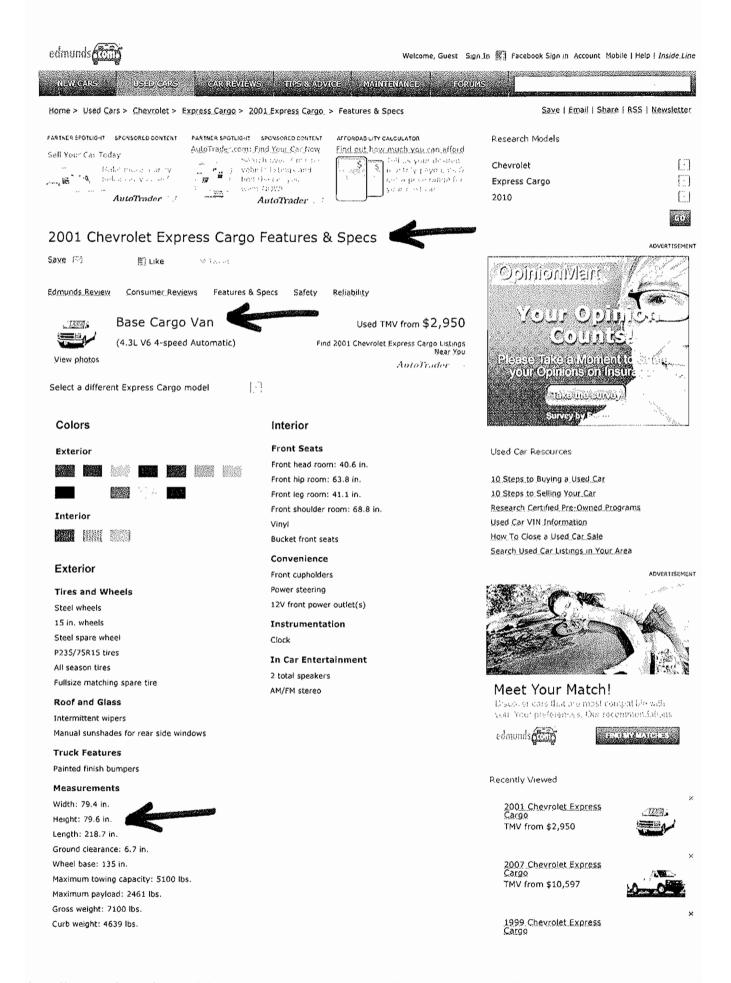
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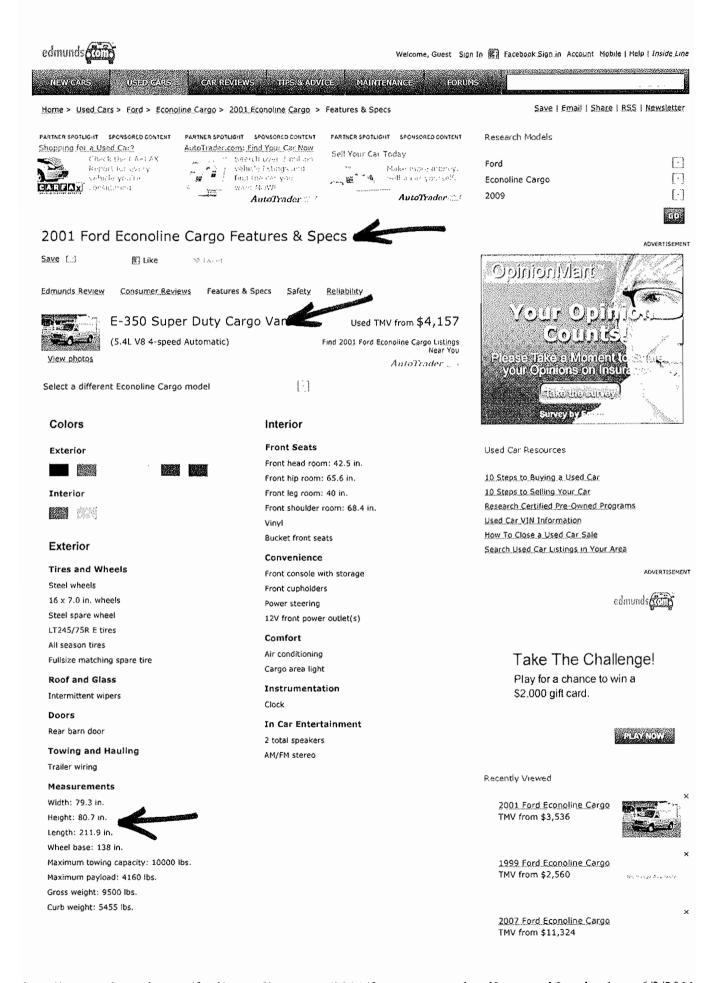
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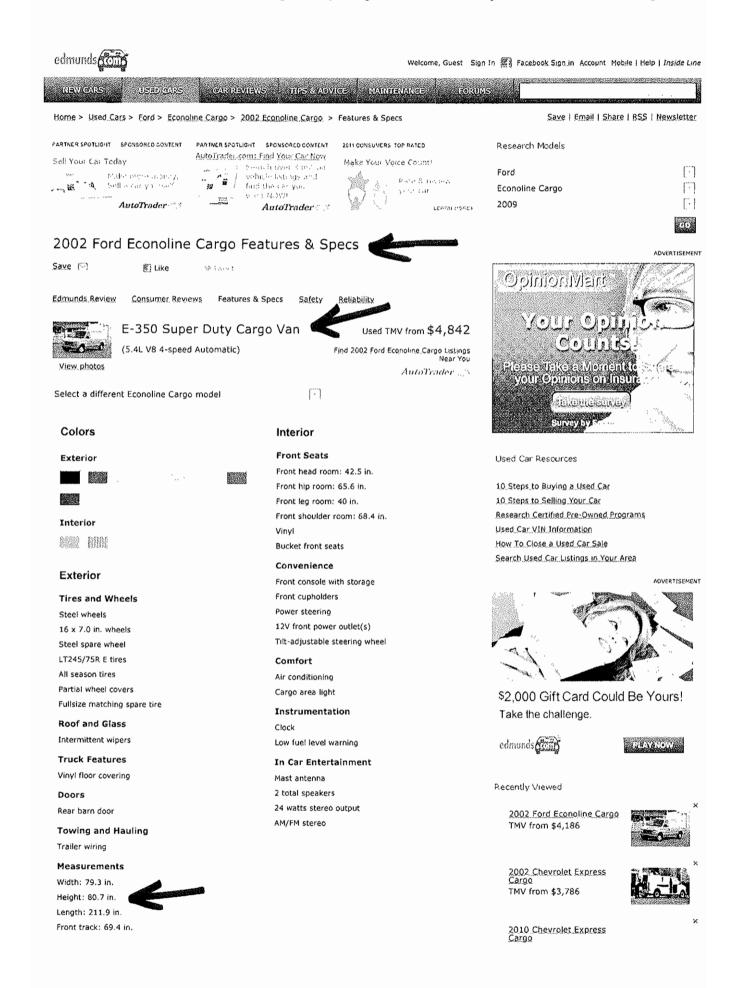






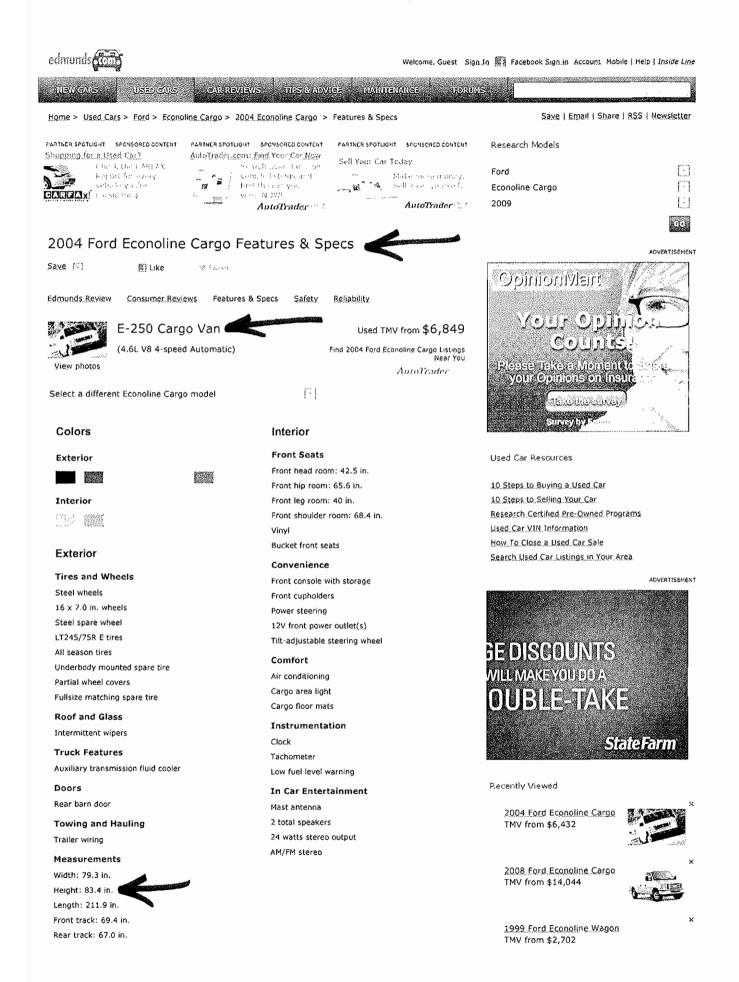








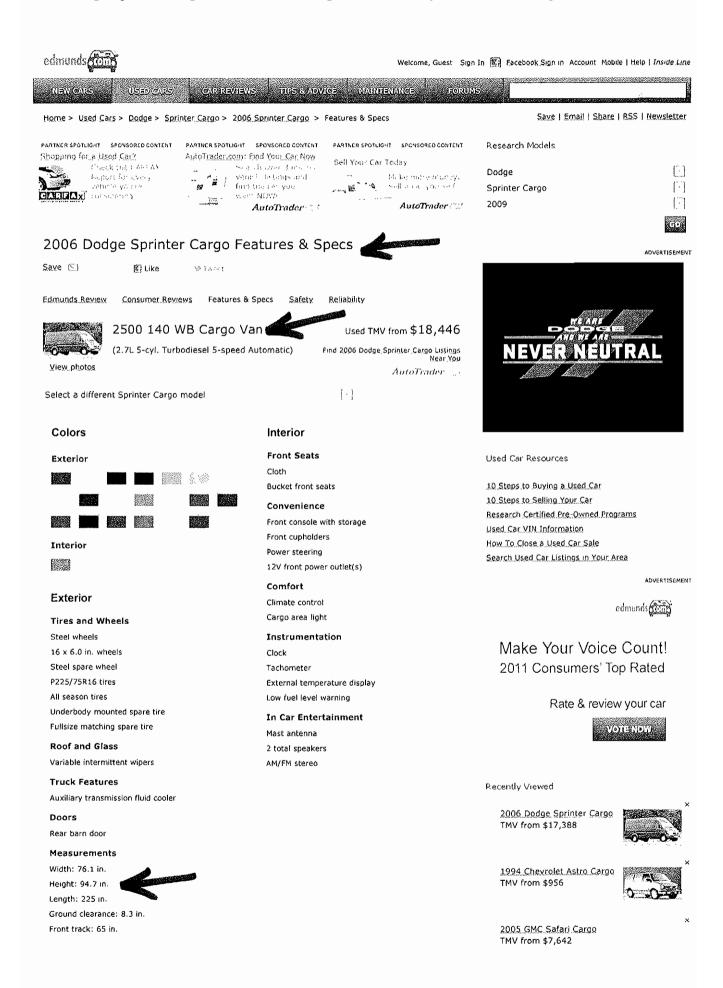


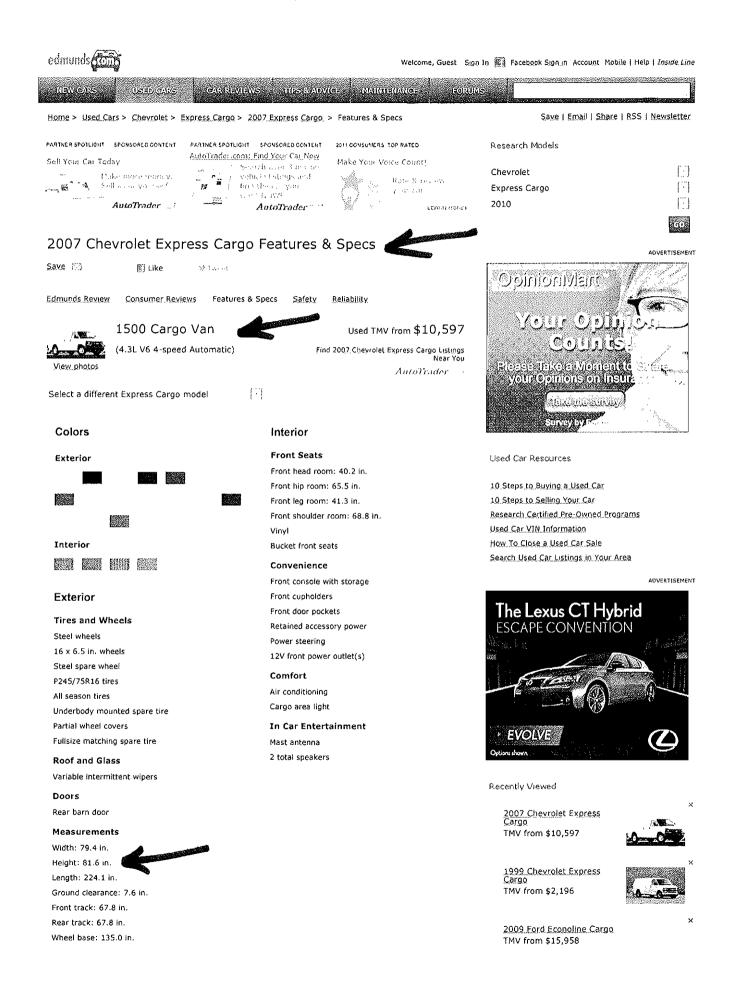




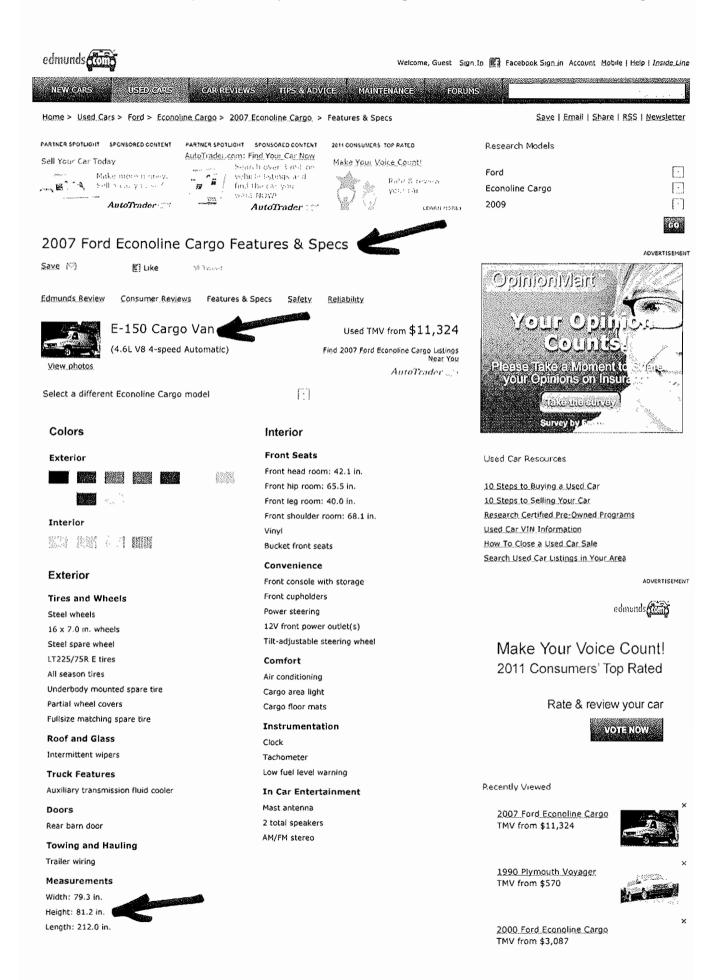


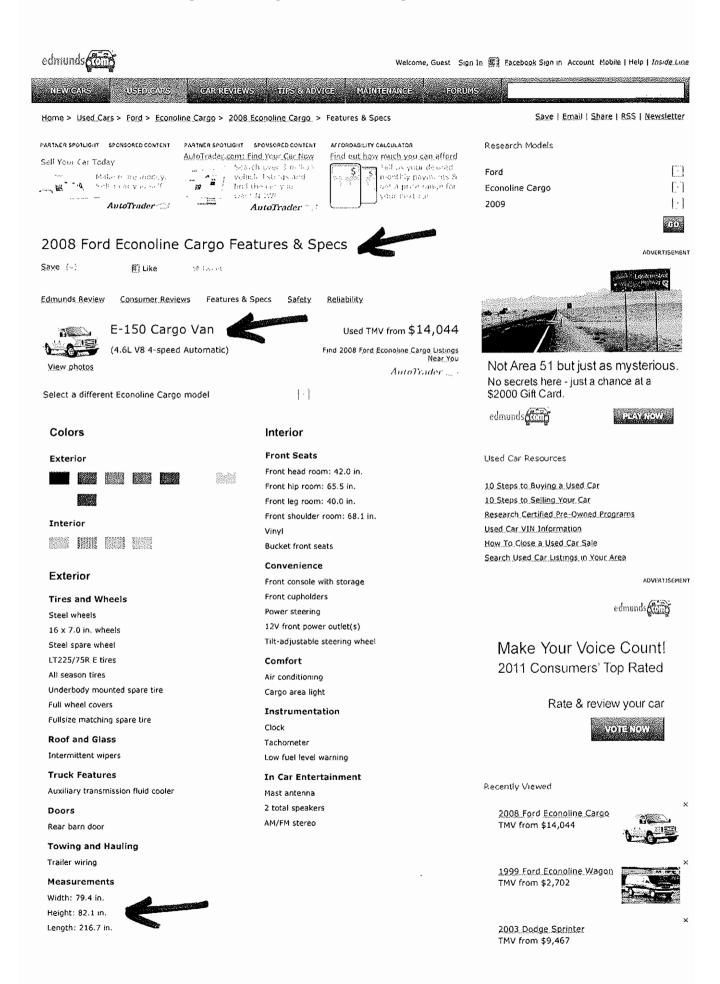


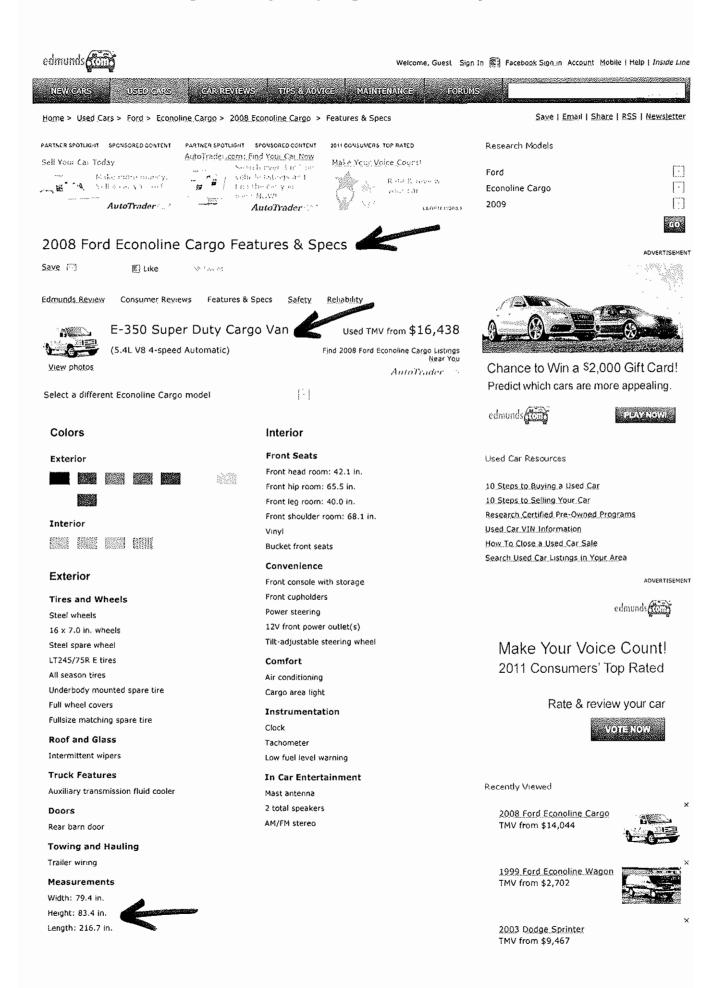






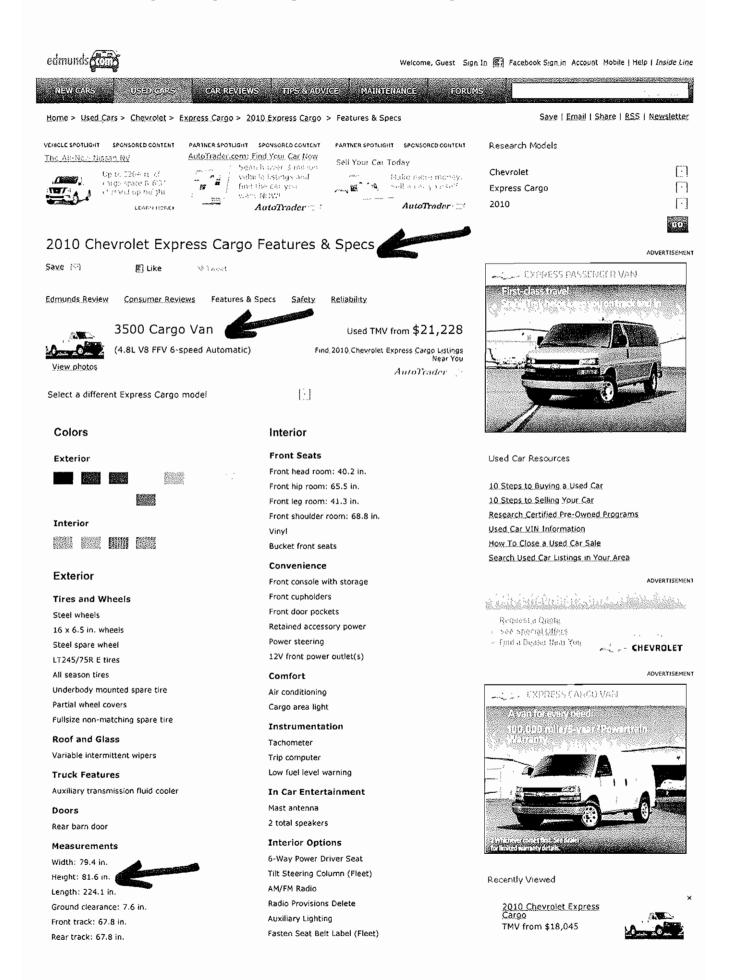








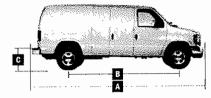






## **TECHNICAL SPECIFICATIONS**

DIMENSIONS							
	E-150 REGULAR	E-150 EXTENDED	E-250/E-350 SUPER DUTY®	E-250/E-350 SUPER DUTY EXT. LENGTH 236.4" (Van)			
EXTERIOR	LENGTH 216.7"	236.4"	REG. LENGTH				
A. Overall length	210.7	230.4	210.7	236.7" (Wagon)			
B. Wheelbase	138.0"	138.0"	138.0"	138.0"			
C. Loadfloor height	28.0" (Van) 28.8" (Wagon)	28.6"	31.1"/29.5" (Van) 30.2" (Wagon)	31.5"/29.7" (Van) 29.1" (Wagon)			
D. Overall width -			70.44	70.40			
Excluding mirrors	79.4"	79.4"	79.4"	79.4"			
D. Overall width — Including mirrors	106.0" (Van) 95.7" (Wagon)	106.0"	106.0" (Van) 95.7" (Wagon)	106.0" (Van) 95.7" (Wagon)			
E. Overall height	82.4" (Van)	82.6-	84.8"/83.7" (Van)	85.0"/83.6" (Van)			
2. 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	82.1" (Wagon)		83.1" (Wagon)	82.3" (Wagon)			
Rear cargo door opening height	49.5" (Van) 46.8" (Wagon)	49.5"	49.5" (Van) 46.8" (Wagon)	49.5" (Van) 48.0" (Wagon)			
Rear cargo door opening width	53.9" (Van) 54.4" (Wagon)	53.9"	53.9" (Van) 54.4" (Wagon)	53.9" (Van) 54.4" (Wagon)			
Side cargo door opening height	48.2" (Van) 47.2" (Wagon)	48.1"	48.2" (Van) 47.2" (Wagon)	48.1" (Van) 47.2" (Wagon)			
Swing-out side cargo door opening width	44.8"	44.8"	44.8"	44.8"			
Sliding side cargo door opening width	45.6"	45.6"	45.6°	45.6"			
INTERIOR	Ì						
1st Row							
Head room	42.0"	42.0"	42.0"	42.0"			
Shoulder room	68.1"	68.1"	68.1"	68.1"			
Hip room	65.6"	65.6"	65.6"	65.6"			
Leg room	40.0"	40.0"	40.0"	40.0"			
2nd Row (Wagon)				İ			
Head room	40.2"		40.2"	40.2"			
Shoulder room	71.7"	ļ —	71.7"	72.8"			
Hip room	66.5"	-	66.5"	68.6"			
Legroom	38.8"	-	38.8"	38.8"			
3rd Row (Wagon)							
Head room	40.1"		40.1"	40.1"			
Shoulder room	71.7"	ļ-	71.7"	71.7"			
Hip room	66.8"	-	66.8"	66.8"			
Legroom	40.0"	-	40.0"	40.0"			
4th Row (Wagon)							
Head room	-	_	38.9"	39.6"			
Shoulder room	-	-	69.4"	69.4"			
Hip room	-	-	66.1"	66.1"			
Leg room	-	-	39.4"	39.4"			
5th Row (Wagon)							
Head room	_		_	37.4"			
Shoulder room	_		-	67.5"			
Hip room	_	_	-	65.8"			
Leg room	-	-	-	37.0"			
Van Only							
Maximum cargo volume							
(ov. 61) habind 1st row	227.0	278 2	237.8	278 3			





## **E-SERIES POWERTRAINS**

## FLEXIBLE FUEL: 4.6L/5.4L GAS V8 FFVS

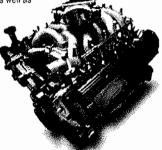
Both E-Series 4.6L and 5.4L gas engines are Flexible Fuel capable. Ford Flex Fuel Vehicles (FFVs) give you the power of choice. E85 or gasoline? FFV lets you decide right at the pump. Both E-Series FFVs can run on E85 (85% ethanol/ 15% gasoline), straight gasoline, or any blend of the two. Since Ford introduced FFVs back in the mid-1990s, we've put nearly 2 million on the road, with a stream of refinements along the way. Ford engines are at the heart of E-Series' versatility and capability. Step up to the 5.4L V8 FFV to get extra punch for high-capacity applications. Its SOHC architecture pumps out 255 hp and 350 lb.-ft. of torque across a wide powerband.

## CNG/LPG FUEL-CAPABLE GAS POWER

This option enables 5.4L V8 and 6.8L V10 gas engines to run on Compressed Natural Gas (CNG) or Liquified Petroleum Gas (LPG). Modifications include hardened intake and exhaust valves as well as hardened valve seats.

#### 6.8L GAS V10

For best-in-class gas torque, opt for the available 6.8L V10. Its electronic throttle control (ETC) modulates torque at the drive wheels for smooth, seamless engine response.



### **ENGINE RATINGS**

	4.6L SOHC V8 FFV	5.4L SOHC V8 FFV	6.8L SOHC V10
Horsepower (hp @ rpm)	225 @ 4,800	255 @ 4,500	305 @ 4,250
Torque (lbft. @ rpm)	286@3,500	350 @ 2,500	420 @ 3,250

<sup>1</sup>Excludes vans equipped with Ambulance Prep Package. <sup>2</sup>Maximum capabilities shown are for properly equipped vehicles with required equipment and a 150-lb. driver. Weight of additional options, equipment, passengers and cargo must be deducted from this weight. Cutaway ratings are based on incomplete vehicles. Final vehicle manufacturer weights and ratings will vary during are based on incomplete vehicles. Final vehicle manufacturer weights and ratings will vary due to upfit and modification requirements. For maximum trailer weights with Crew Van, deduct 200 lbs. from the weights shown (except with 18,500 lbs. GCWR). 'E-350 SRW Cutaway with 5.4L V8 only (midship fuel tank) 10,600-lb. GCWR.

## MAXIMUM LOADED TRAILER WEIGHT RATINGS (LBS.)2

237.8

278.3

237.8

AUTOMATIC TRANSMISSION			WAGON			van,						CUTAWAY			
	AXLE RATIO	<b>GCWR</b>	E-150	E-350 Super Duty	E-350 SUPER DUTY EXTENDED	E-150	E-150 EXTENDED	E-250		E-350 Super Duty	E-350 SUPER DUTY EXTENDED	E-250 SRW	E-350 SRW	E-350 DRW	E-450 DRW
4.6L SOHC V8 FFV	3.73	11,500	5,600		_	6.000	5,900	6,000	5,900	_		_	-	· ·	-
1		12,000			-	6,500	6,400	6,500	6,400	! -	-	7,500	-	-	
5.4L SOHC V8 FFV		9,600 10,050 13,000	- - 7,000	- 6,700	- - 6,500	- - 7,500	- 7,300	  7.400	7,300	- - 7.400	- - 7,200	_ _ _	4,700	4,900	- 
		10,600	7,000	-	6,500	 7,500	- 7,300	- 7,400	- 7,300	7,400	7,200		5,700 <sup>4</sup> 8,000	- 7,700	<del>-</del>
	4.56	14,050	-	-	_	-	-	-	:-	-	_	-	-	-	8,500
6.8L SOHC V10		15,000 18,500		8,500 10,000	8,300 10,000	_	- -		i	9,100 10,000	9,000		10,000	10,000	-
<b>,</b>		22.000			-	_	_	_	· !	-	-	_	-	-	10,000

278.3











# **EXHIBIT C**



Southerly view of 134th Avenue East, taken from a position along the west edge of 80th Street East's intersection with 134th. (Photo taken on 6/5/2011 by Debra Santelli, legal assistant, Halinen Law Offices, P.S.)